FREIGHT TRAFFIC: HOW SHIPPERS CAN BOOST CAR SUPPLY

July 28, 1969

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RAILWAY AGE

THE TRANSPORTATION WEEKLY

New ICC report on passenger service p. 3

A freight car that turns corners p. 22

Big covered hopper has a box car profile p. 25

Simulation: New game with computers p. 28

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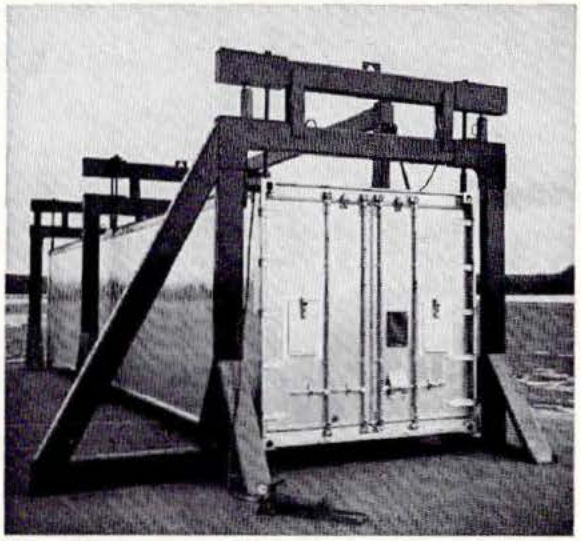
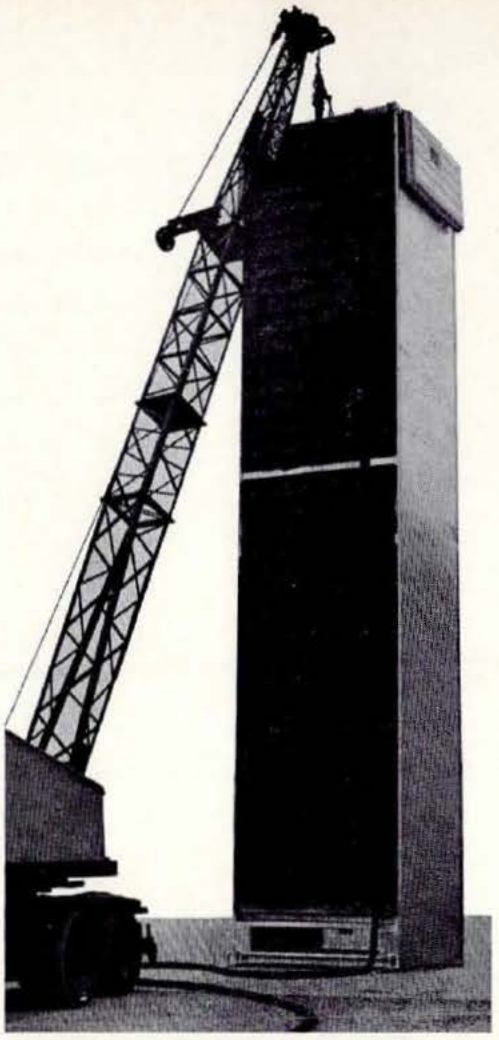
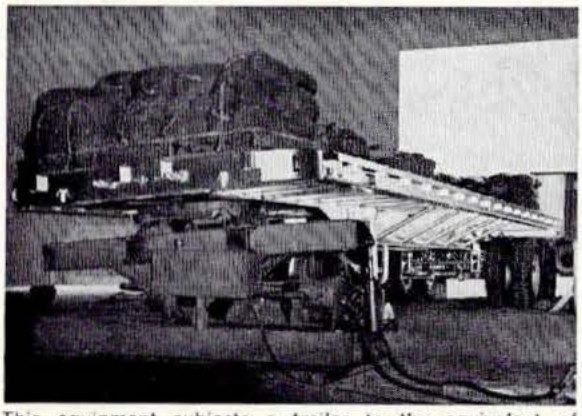
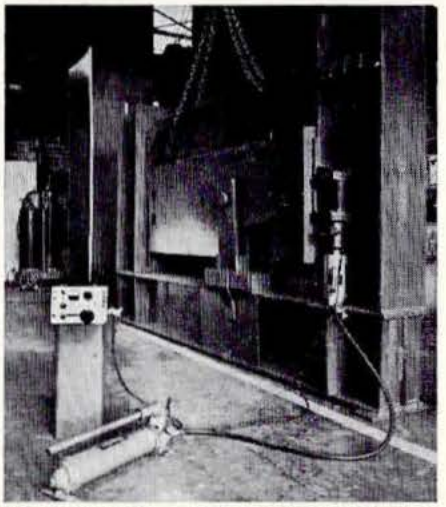


This multi-purpose test fixture allows engineers to take accurate readings on stresses applied vertically, horizontally and diagonally

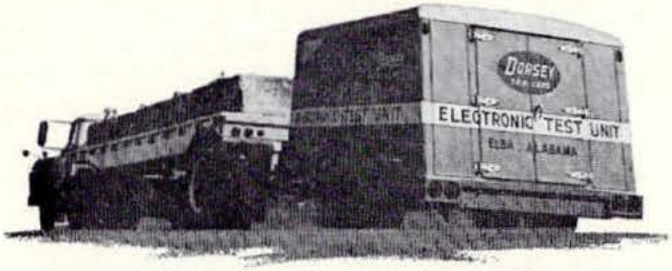




This equipment subjects a trailer to the equivalent of 200,000 road miles in less than 60 days. Rollers rotate the wheels while the oscillating fifth wheel subjects the unit to a severe wracking motion at pre-set intervals



A large hydraulic cylinder applies forces simulating the strains imposed at the point where tractor fifth wheel supports a loaded trailer



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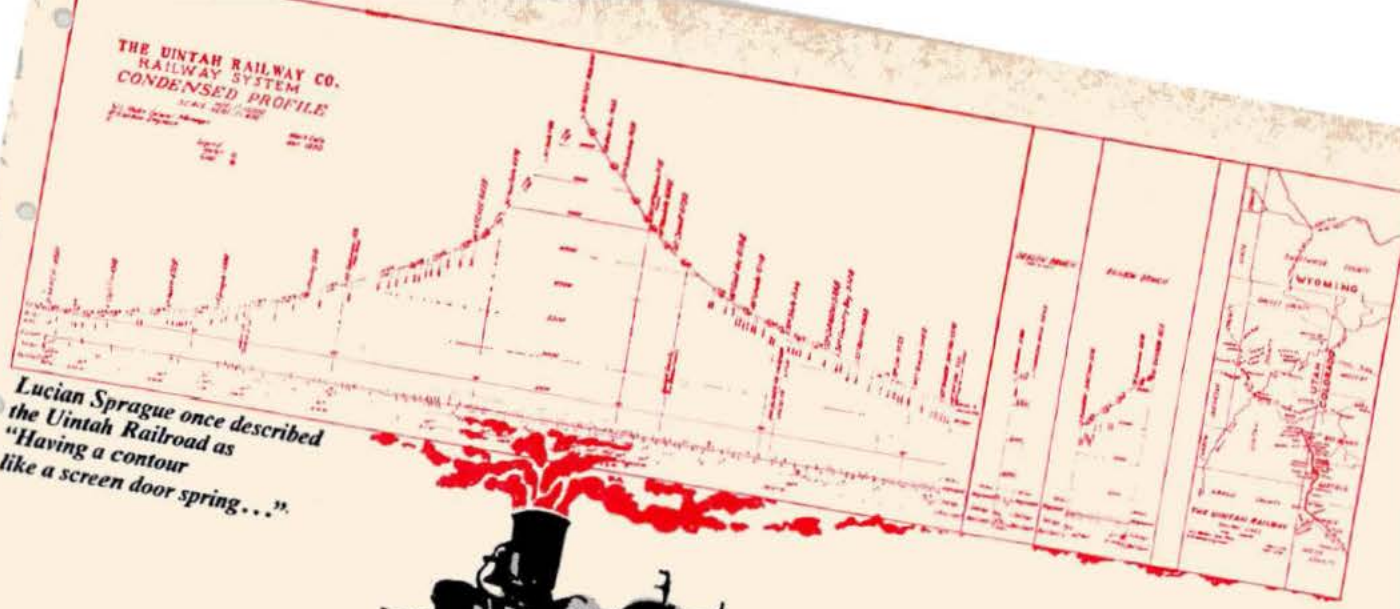

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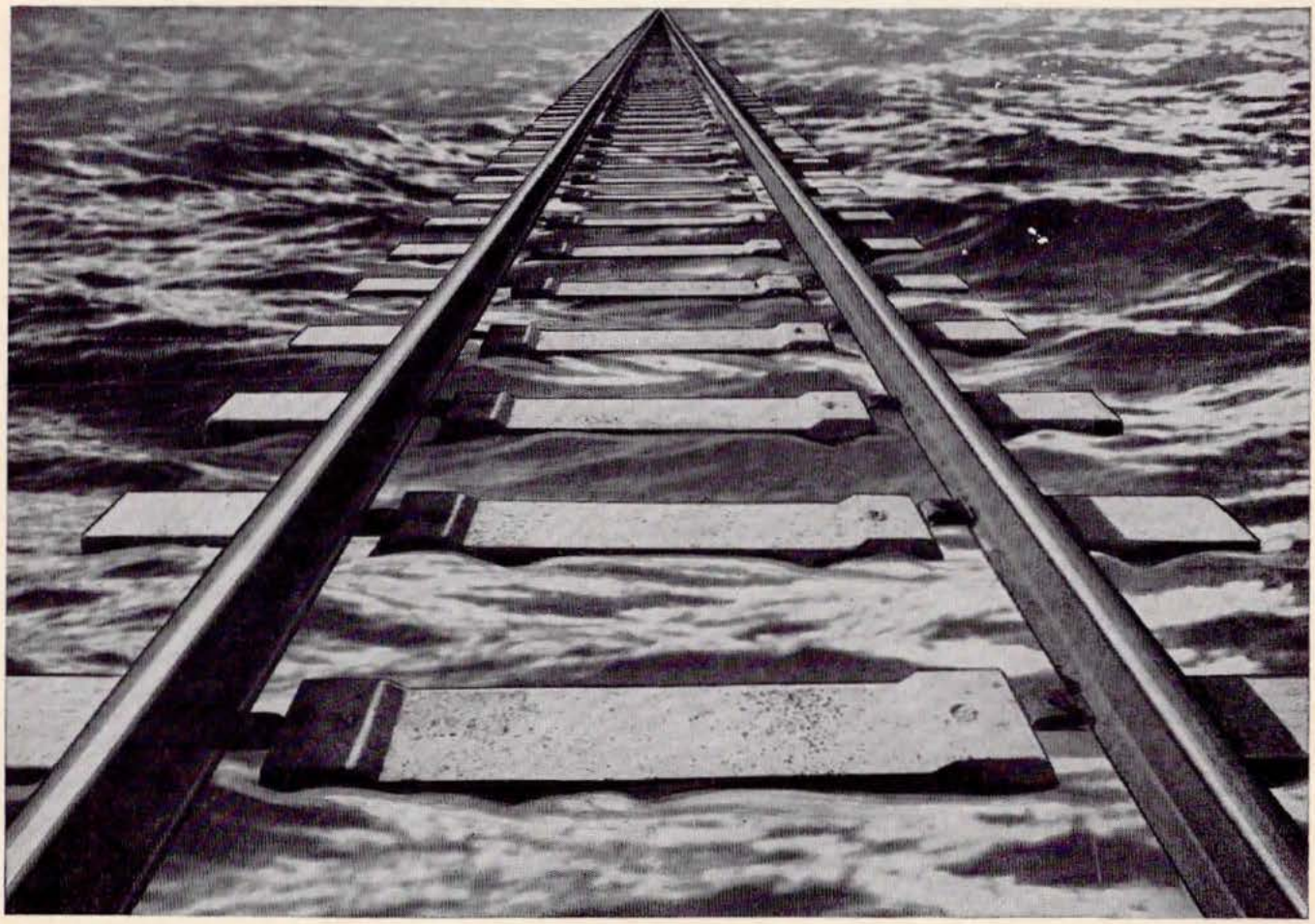

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RAILWAY AGE

July 28, 1969 • Vol. 167, No. 4

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. . . AND COMING NEXT WEEK

TRANSIT: Can traffic-congested U.S. cities learn anything from the experience of Toronto and Montreal? Missouri Governor Warren E. Hearnes, concerned about the transportation problems of his state—and especially of St. Louis and Kansas City—recently visited the Canadian cities with this question in mind. On the way home he stopped in Cleveland to ride the new airport transit line. What he saw on his five-day swing will be reported in the Aug. 4 issue of Railway Age.

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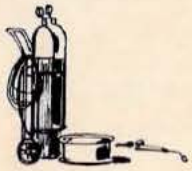

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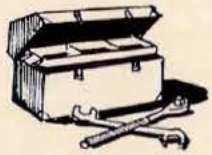

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To keep the 13,000 Pool Trailers on line and on the go, REALCO carries on a program of maintenance, directed and supervised by regional field maintenance personnel situated where the need for action is...through affiliated and contract service facilities, and the national fleet of company owned Mobile Service Units. Regular maintenance and service are provided at each point of trailer assignment, and at points of movement concentration.

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SHORT AND SIGNIFICANT

Property-tax legislation gets July 30 hearing

Congressional action on legislation favorable to the rail industry will come July 30 when the Senate surface transportation subcommittee will hold a hearing on discriminatory taxation. A rail-backed bill would amend the Interstate Commerce Act to make unlawful—as unjust discrimination against and an undue burden on interstate commerce—certain property tax assessments on common and contract carrier property. Similar legislation was reported out by the full commerce committee July 29, 1968, but it did not reach the floor in the 90th Congress.

Montreal-Toronto Aerotrain route is under study

The Canadian government is considering putting an ACV (air-cushion-vehicle) train into service between Montreal and Toronto. Talks are now under way with Jean Bertin, developer of the Aerotrain, which is soon to get a full-scale demonstration in France. The experimental Aerotrain will be operated on a 12-mile-long, 16-ft-high concrete guide track a few miles outside of Orleans. Some Canadians see the 185-mph-Aerotrain as the long-range answer to the need for high-speed transportation in the Montreal-Toronto corridor.

Alaska handles its largest rail shipment

Up north, in the nation's 49th state, the Alaska Railroad has just handled its largest shipment—a 140-ft long, 140-ton crude distillation column for the refinery being constructed in Nikishki by Alaskan Oil & Refining Co., a subsidiary of Tesoro Petroleum Corp. The column was designed and built in Houston, Tex., to meet the railroads, size limitations and was shipped in 70-ft sections on two rail cars.

Cybernetics conference theme: the 21st century

"Advancement Toward the 21st Century Railway" will be the general theme of the Third International Symposium on Railway Cybernetics in Tokyo April 12-17, 1970. The conference will address itself to four major questions: (1) How can passenger and freight transportation be modernized in terms of day-to-day management? (2) How should the railway system of the future be structured in relation to other modes of transport? (3) How can cybernetics be used to improve relations between the railway and its customers? (4) How can the administrative structure best be adapted to the application of cybernetics? Information on the conference is available from Dr. S. Fujishima, director, foreign department, Japanese National Railways, 1-1 Marunouchi, Tokyo 100, Japan; or from the General Secretariat of the International Union of Railways, 14, rue Jean Rey, 75-Paris, 15e, France.

Pullman earnings double in second quarter

Pullman, Inc. has reported net earnings of $6,310,090, equal to $1.34 per share for the second quarter for 1969, which is more than double the restated earnings of $2,894,365, or $.62 per share for the same period last year. Earnings for the first six months of 1969 were $10,944,567 or $2.33 per share, up 83.7% from comparable 1968 figures of $5,957,696, or $1.27 per share. Sales and other revenues increased 19% for the second quarter over the same 1968 period. W. Irving Osborne Jr., chairman and president, told shareholders that the earnings increase was due principally to the continued improvement in the company's railroad freight car operations.

New Haven take-over by MTA?

New York's Metropolitan Transportation Authority is talking about taking over Penn Central's New Haven and Harlem and Hudson divisions around the end of the summer. A PC spokesman noted that the details were being worked out and that a memo of intent has been filed. "In a month or two the whole thing should be settled and the MTA will be in charge of commuter service," he said.

MONDAY MORNING REPORT

ICC PUSHES RAIL PASSENGER SUBSIDY

Only a major change in Federal and carrier policy will stave off starvation of "significant segments of the remaining intercity service" (northeast corridor excepted). That's what the ICC says in its report on the costs of intercity rail passenger trains. How soon must that change come about? Within "the next few years," ICC says. What kind of change? Expansion of Federal aid to include passenger trains (and presumably a melting—as AAR proposes—of the industry's reluctance to enter the Government breadline).

NOW—ANOTHER STUDY?

The ICC says that an evaluation of the nation's rail-service needs must be started immediately. This study would determine what the public requires in long- and medium-distance trips outside of major population corridors, how much it will cost to provide that service, and what the Federal share will have to be. Such a study should take no more than 12 months. In the meantime, no carrier could take off the last train between interstate points. But other losers could be abandoned.

EIGHT RAILROADS COULD HAVE SAVED $118 MILLION

What the ICC said it would look for when it announced the study last November was the phantom called avoidable cost. ICC says it was able to determine how much money eight railroads could have saved in 1968 by dropping passenger trains. The railroads are Southern, Seaboard, Santa Fe, Great Northern, Illinois Central, Missouri Pacific, Union Pacific and C&O/B&O. Those railroads provided more than 40% of the U.S. non-commuter rail passenger miles last year. According to the ICC, these carriers could have run only freight trains and saved $118 million. That's how much more they would have saved in expenses than they would have lost in revenues. Also, they would have gained $69.2 million by salvaging their passenger equipment and facilities. And that $69.2 million could have been reinvested for an annual return of $4.2 to $6.6 million. The Commission also said the eight carriers incurred from passenger operations in 1968 a $61-million cash drain—the loss in funds available for capital investment and for dividends.

AAR CALLS FOR "IMMEDIATE ACTION"

AAR President Thomas M. Goodfellow said the ICC's cost-study report "could be an important milepost in a long-overdue, much needed frontal assault on the nation's perplexing railroad passenger problem. Now that the losses involved in providing passenger service have been firmly established, we're hoping all concerned can roll up their sleeves and hammer out a solution. The urgency of the situation cries out for immediate action, not study after study."

It's time

to stop playing Dominos with your freight cars...

Dominos are like freight cars, only freight cars cost a lot more. They can fall over like dominos when harmonic roll hits a string of cars—and this means derailment trouble. Cars equipped with the Stucki HS-3 Hydraulic Snubber are able to stay on the track at all speeds—without wheel lift and without severe rocking.

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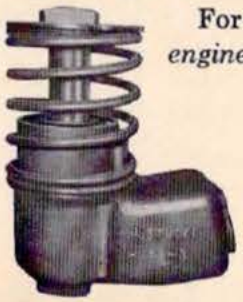

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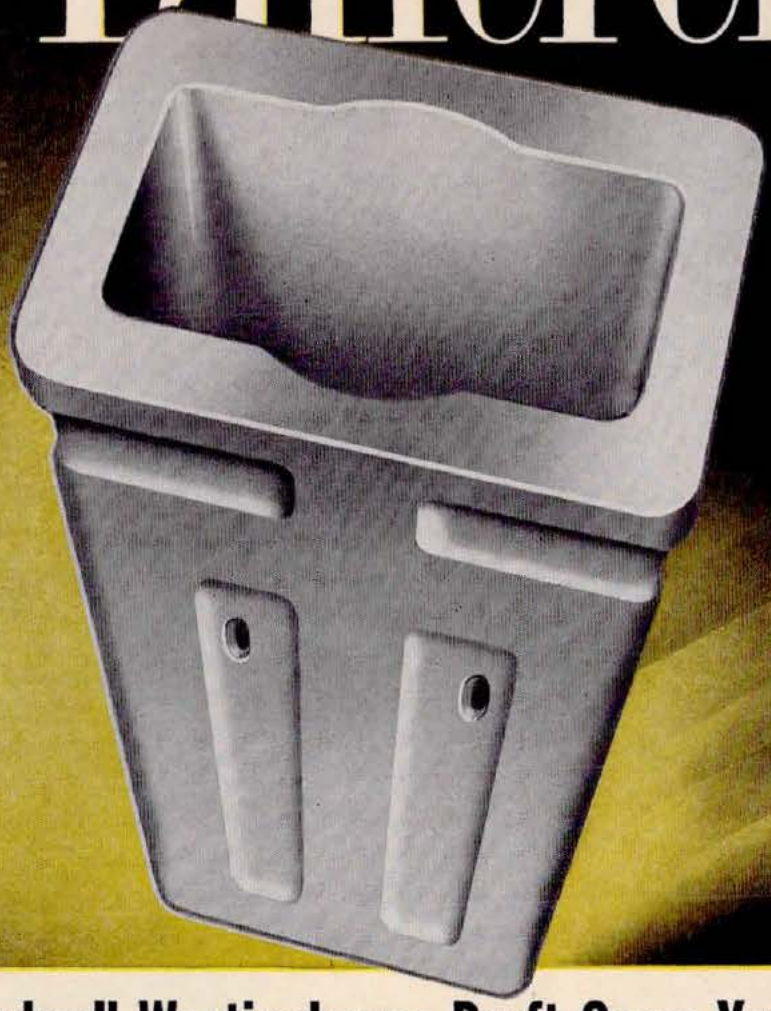

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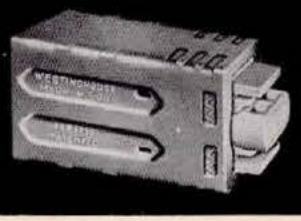

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RAILWAY AGE
THE TRANSPORTATION WEEKLY
JULY 28, 1969

WEEK AT A GLANCE

Nixon proposes ICC chairman become permanent

Starting next Jan. 1, the Interstate Commerce Commission may have a permanent chairman with full administrative power. That is, if Congress lets October 11 come around without vetoing a measure for ICC reform submitted last week by President Nixon. There is a 60-day veto limit on the plan. Within that period is a three-week Congressional recess.

The proposed permanent chairman would be a presidential appointee from Commission members. The present method is to rotate a commissioner into a one-year chairmanship by seniority. The measure would make the nation's oldest regulator conform to similar government agencies. Most other major regulating bodies were so reformed in 1950. ICC was included in the 1950 effort initially.

Mr. Nixon said there is need for "sustained leadership" at ICC. "I know of no modern business that would tolerate the practice of annually rotating its chief executive," he said.

The proposal includes establishment of administrative authority in the ICC chairmanship. This power was delegated to the chairman by ICC in 1961. But the President said last week those powers must be vested in the chairman by law, not merely delegated. Otherwise, ICC statutory authority will remain ineffectively dispersed among commissioners.

The Nixon proposal omitted a plan to cut the number of commissioners by attrition from 11 to seven.

More automobiles, fewer grade-crossing accidents in 1968

Although the number of motor vehicle registrations increased by more than 4 million in 1968, there was a decrease in the number of grade-crossing accidents and casualties, the Federal Railroad Administration reported last week.

Last year, there were 3,816 grade-crossing accidents, compared with 3,932 in 1967. Last year's fatalities totaled 1,546, and injuries numbered 3,774, compared with 1,632 fatalities and 3,812 injuries in 1967.

The Federal Railroad Administration also reports that in 1968, 781 additional crossings got special protection such as gates or devices indicating a train's approach. Latest available statistics show a total of 213,723 grade crossings still in existence. Of these, only 45,213 (21%) are specially protected, FRA says.

Eastern rails cite RPI for promotion effort

Alfred E. Perlman, president of Penn Central and chairman of the Eastern Railroad Presidents Conference (right), presents citation to Nils A. Lennartson, president of the Railway Progress Institute, for the excellence of the RPI's slide presentation, "Meet the New Railroads." RPI's presentation has been shown 81 times throughout the country —and 15 of these showings have been sponsored by the ERPC.

RPI's traveling road show, created when W. Ashley Gray, Jr., president of General Steel Industries, was chairman of the Institute, is being continued and expanded under the chairmanship of J. W. Henderson, Jr., president of Buckeye International. The show consists of color slides, which are constantly updated, and narrative by an RPI officer. Thousands of national, state and local leaders have viewed the show.

GUS WELTY

LINES ON LABOR

CONTRARY TO POPULAR OPINION, not all of a union's battles are fought with management. Some of the bitterest brawls are strictly family affairs—touched off by a raid (or, as it's more politely put, by a petition for a representation election). There are signs that just such a brawl may be brewing.

THESE SIGNS of impending conflict contrast rather sharply with the raiding-record thus far in 1969—which doesn't show much that's surprising or significant. The Teamsters have taken on the Brotherhood of Railway and Airline Clerks on a couple of occasions, with one success and one failure. The Brotherhood of Sleeping Car Porters won representation rights on two roads where the employees involved had no union. The United Transportation Union failed in a bid to pick up dispatchers on the Long Island, but it won rights covering firemen and yardmen on the tiny Chestnut Ridge Railway.

IN THE OLD DAYS, the raiding front was much, much busier. The Brotherhood of Railroad Trainman battled the Order of Railway Conductors & Brakemen and the Switchmen's Union of North America. The Brotherhood of Locomotive Firemen & Enginemen battled the Brotherhood of Locomotive Engineers. On the non-op side, BRAC occasionally slugged it out with the Transportation-Communication Employees Union (and the Teamsters pecked away at BRAC). But now, BRT, ORC&B and SUNA are all under one roof, along with BLF&E. BRAC and TCEU are one. The old traditional rivalries are no more—with one exception. And it's that exception that may provide the fireworks.

IT'S NO SECRET that the founders of the United Transportation Union would have preferred a five-way merger, including the BLE. It's also no secret that the BLE thought differently. There are no indications that either UTU or BLE has had a change of heart.

BASICALLY, there are three ways to get unions together. One is through voluntary agreement. The second is through attrition, where members of one craft organization are promoted into jobs represented by another organization and eventually become a majority. The third is through raiding. Where UTU and BLE are concerned, the first route seems to be blocked. The second method takes a long time. But the third? There, all it takes to win is through planning, adequate financing, a good sales pitch—and the will to win, whatever the cost. Watch No. 3.

Southern wants to buy 92-mile TA&G

Agreement was reached last week for sale of the 92-mile Tennessee, Alabama & Georgia to the 8,200-mile Southern System. Subject to ICC approval, Southern will offer TA&G stockholders 3/10ths of a share of its no par common for each share of TA&G common, $2.50 par. The smaller carrier operates between Chattanooga, Tenn., and Gadsden, Ala.

Southern also announced some healthy first-half earnings figures last week. On operating revenues of $284.8 million, an increase of 11.6% over the 1968 period, Southern and its subsidiaries had a net income of $23.3 million for the first six months of the year, up 14.5% from last year.

New SP approach on passenger service

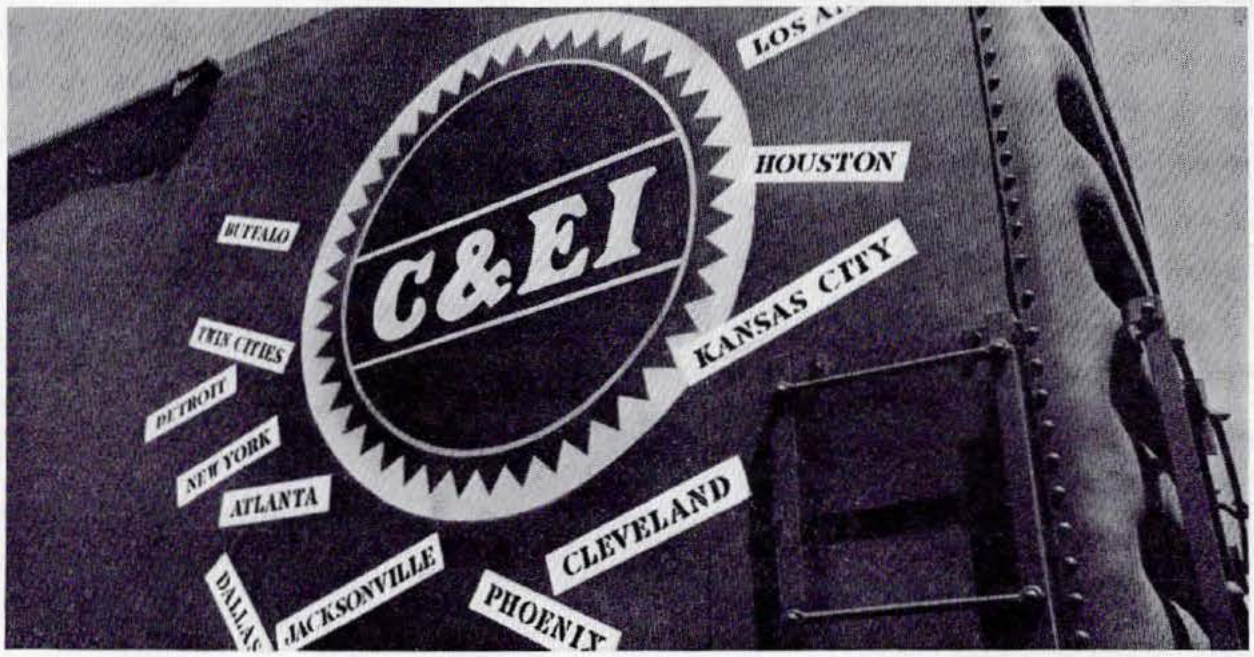
Southern Pacific is taking a new tack, in its efforts to do something about mounting passenger-service deficits. The current proposal: cut back from daily operation to tri-weekly operation, thereby permitting a reduction in the loss while still maintaining a certain amount of service. Thus far, SP has set up plans covering three pairs of trains—the "City of San Francisco," between the San Francisco Bay Area and Ogden, Utah; the "Sunset," between Los Angeles and New Orleans; and the "Cascade," between Portland, Ore., and Oakland, Calif.

Containerization program is set

Broad questions affecting the future of containerization will be examined during the Technical Congress of the Second International Shipping, Containerization and Marine Engineering Exposition, to be held at the New York City Coliseum Sept. 15-18. Major subjects will include: container ships; container leasing; improved coordination between land and ocean carriers in intermodal transportation; container materials, construction and sizes; computerization and container control; containers and the LCL-LTL shipper; and through bills of lading and joint rates. Containerization Institute, Inc., is coordinating the Congress.

C&EI starts a lot of things it can't finish.

Which is why we're Mid-America's most versatile railroad.



With only 862 miles of track in Indiana and Illinois, it obviously isn't how far we travel that's important. It's where we travel.

Because C&EI is a "feeder" or connecting line. We take freight from out in left field and put it smack into the mainstream of mainline transportation. If you want to ship north out of Chicago toward Oshkosh...by gosh, we can arrange it. Got a big deal in the northeast, like Buffalo? Start with us and get there fast. West, southwest, deep in the heart of Alabama or a straight sweep to Florida... C&EI has enough track to put you on the right track.

Remember that, next time you ship to, through or from Mid-America. We may only be a short railroad. But you'll be amazed how far you can go because we have the right connections.

CHICAGO & EASTERN ILLINOIS C&EI

Circle 9 on coupon page 48

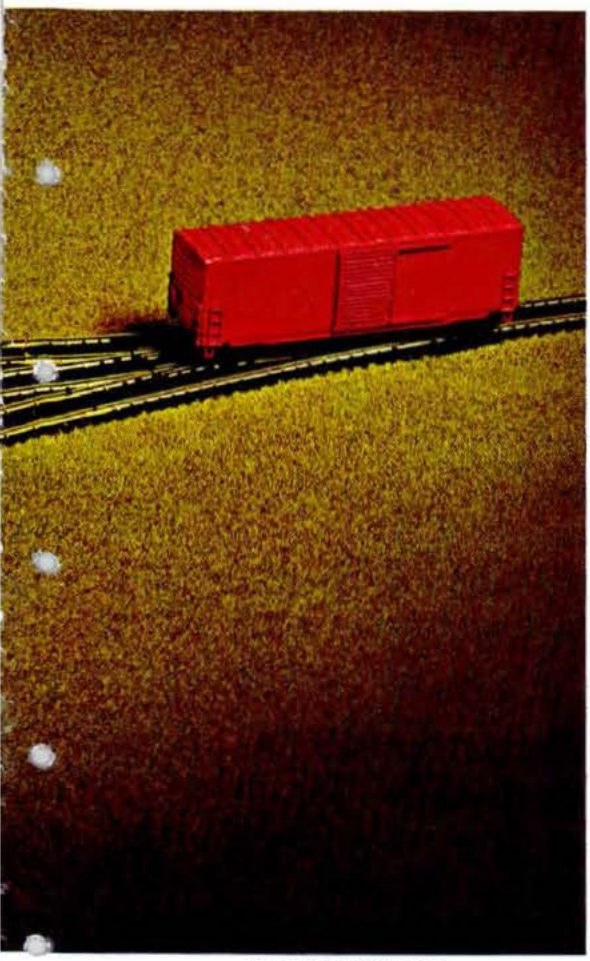
Illustrated above in blue: Pullman-Standard Foam Insulated Car; purple: PS 86′ Hy-Cube; orange: PS 60′ Auto Parts Car; green: PS Mini-Hycube; yellow: PS Waffle-Side Box Car.

RPI
RAILWAY PROGRESS INSTITUTE

You can't do much to a box car.

Except lengthen it, raise it, insulate it, cushion it, or give it waffle sides.

What you do to a box car determines what a box car can do.



Above: PS-1 40′ Box Car.

Since building the first standard box car, we've become the best choice for specialized box cars. Like Hy-Cubes, Mini-Hycubes, auto parts cars, foam-insulated box cars and cars with long travel cushioning.

And now we've got a model with "waffle" sides.

Single sheath car sides can be embossed with a "waffle" pattern, so that cross bar belt rails are recessed. This results in flush interiors, designed to protect lading from snagging and damage, while providing utmost efficiency in securing it.

When it comes to doing things with box cars, Pullman-Standard still does them best.

Pullman-Standard
WORLD'S LARGEST RAIL CAR MAKER
200 South Michigan Avenue, Chicago, Illinois 60604

A Division of **Pullman Incorporated**

Katy always remembers you're in business for profit ...especially when you want fast, skillful rate service

KATY's rate department is among the best anywhere. It's staffed by experts who take a personal interest in cutting through red tape and shipper-be-damned attitudes to solve rate and routing problems without delay. Whatever the commodity. Despite complicated tariffs and ever-changing rate structures, they do their darndest to keep you competitive when you ship with KATY.

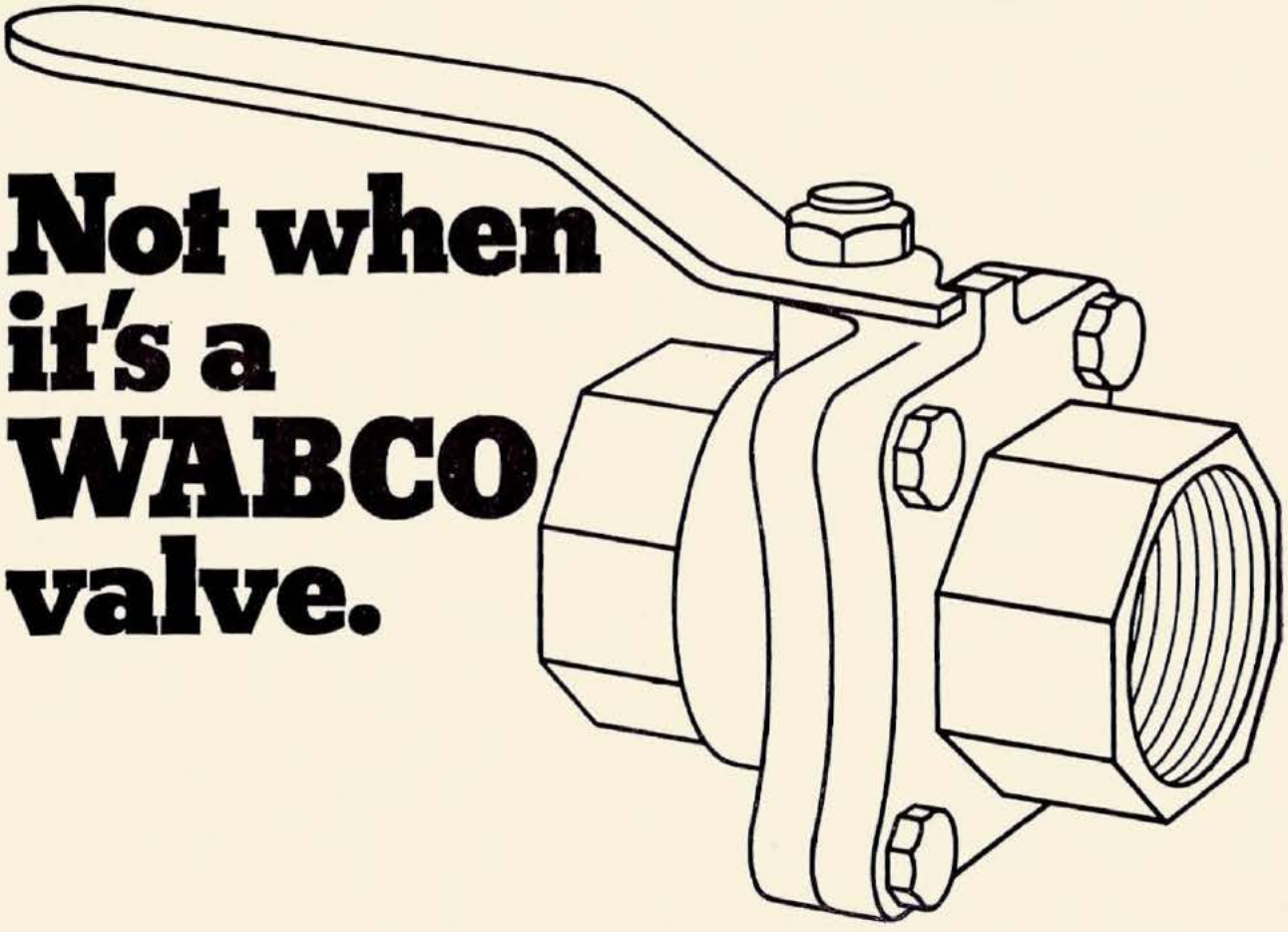
For rate making service that really is personalized, call KATY's nearby representative. Soon.

Count on KATY

MISSOURI-KANSAS-TEXAS RAILROAD CO.
Katy Building, Dallas 75202 • 420 Gimblin Road, St. Louis 63147

Circle 11 on coupon page 48

Is there anything exciting about a zero-leakage ball cut-out cock?



Not when it's a WABCO valve.

Now take leakage. *That's* exciting. People running around, chasing down parts, scheduling unscheduled maintenance, juggling replacement equipment. Tempers rise. Costs rise. Timetables fall.

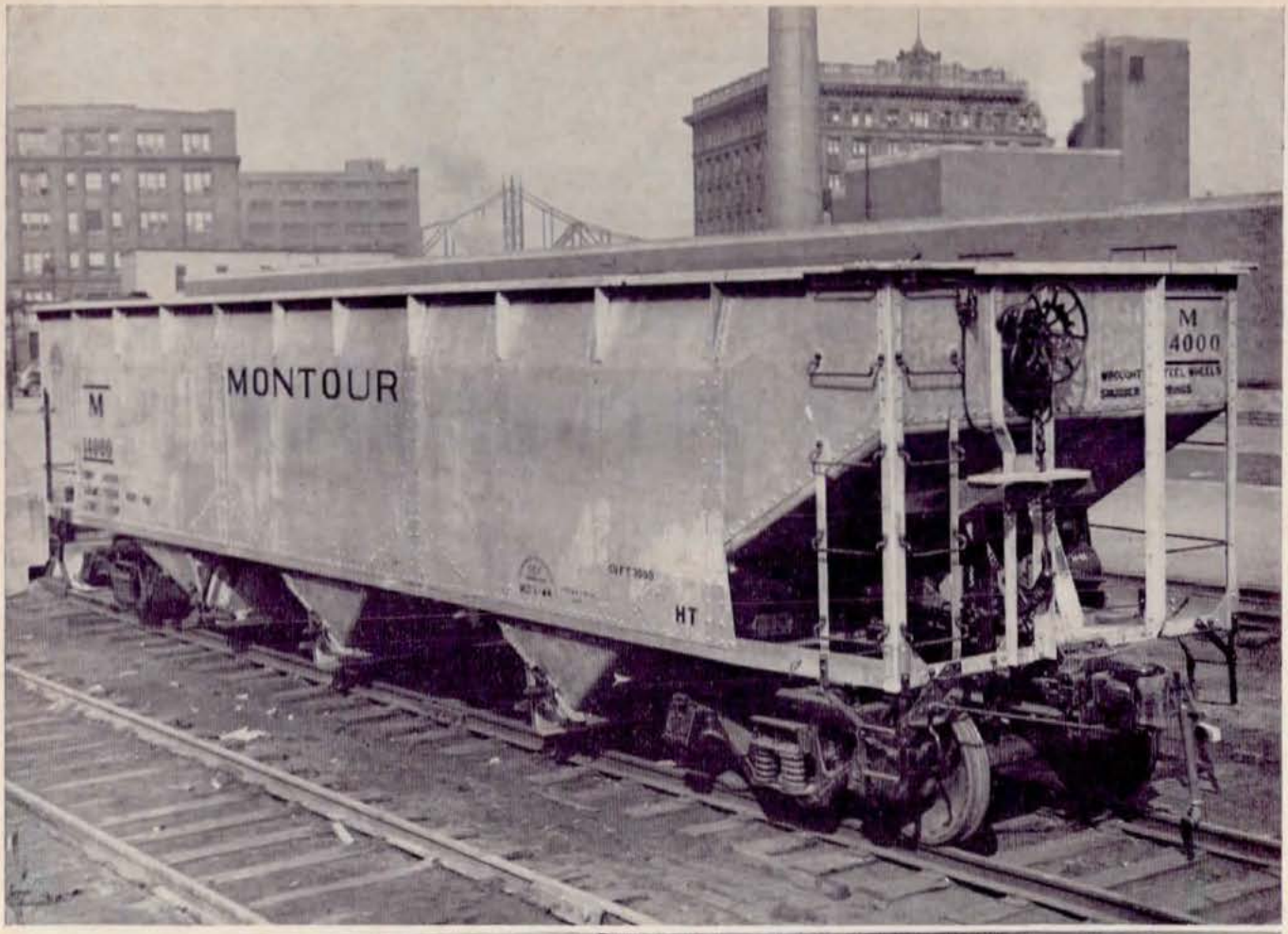
So WABCO introduces a very boring ball valve cock. It doesn't leak. In long, punishing endurance tests, we subjected a selection of sizes to 10,000 operating cycles at temperatures from —50°F to +150°F. Zero leakage.

There's nothing hectic about other features of the WABCO "Ball" Cut-Out Cock, either. It operates easily, works smoothly under light handle forces. Maintenance is simple: its Buna "N" seals are self-lubricating, self-cleaning, and self-adjusting for wear; and they can be replaced in a matter of minutes.

You might call this the world's most unexciting valve—except that the economies of zero-leakage are fairly exciting in themselves. If you have been watching the trend to ball valve cocks, this is the time to move. The WABCO "Ball" Cut-Out Cock is in stock right now. For further information write Westinghouse Air Brake Division, Wilmerding, Pa. 15148, or any of its Distribution Centers.

WABCO
WESTINGHOUSE AIR BRAKE COMPANY
a subsidiary of AMERICAN-STANDARD

Circle 31 on coupon page 48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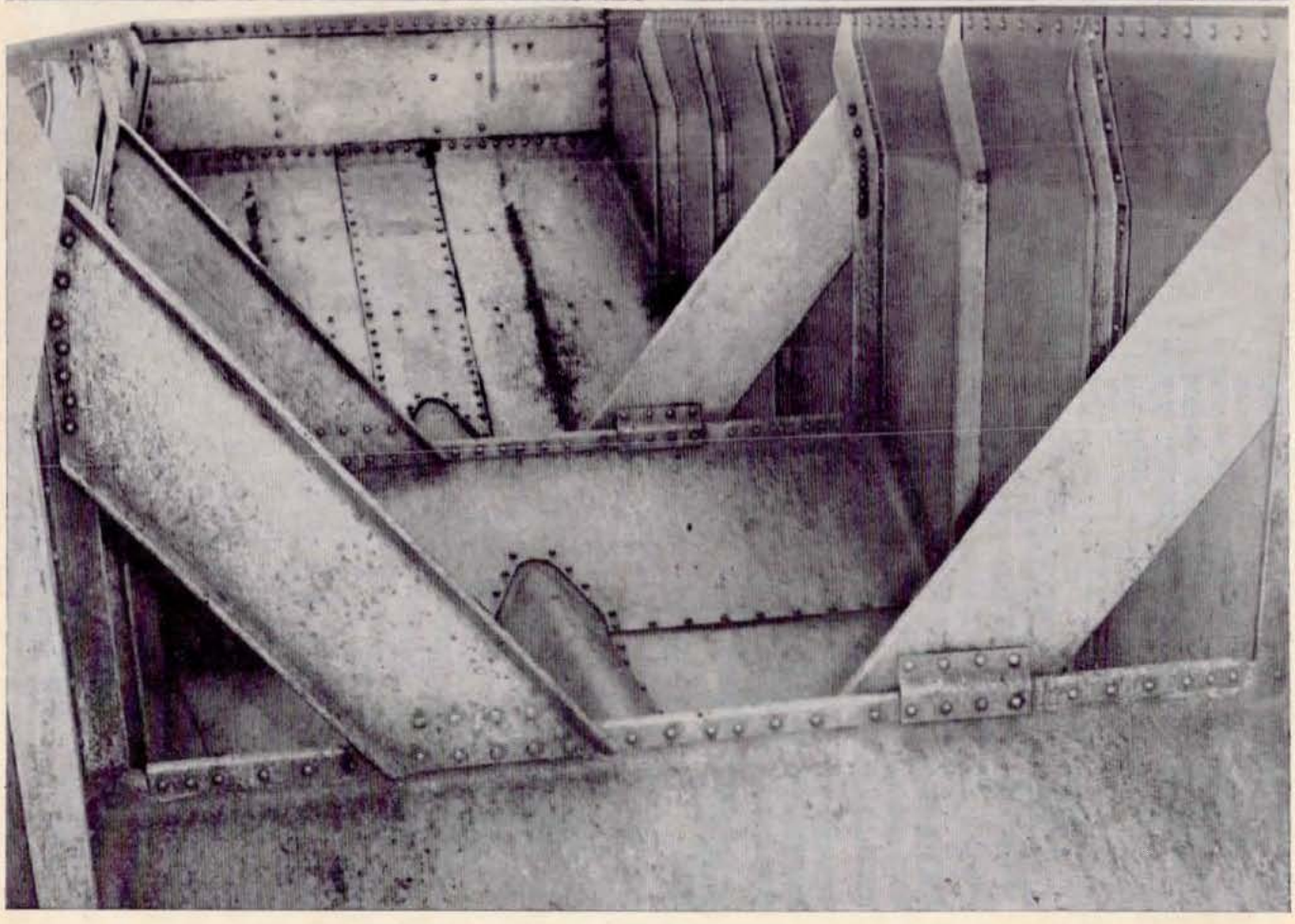


1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969...

For the past 23 years, this aluminum coal car has been rotary-dumped on the average of twice every three days. It still has a lot of life left. It's Alcoa® Aluminum. (The Montour 14000 was built in 1946 by American Car & Foundry.)

Tests over a 30-year period on aluminum and steel hoppers in a corrosive environment have shown that aluminum retains nearly four times the tensile strength of steel. In fact, other materials failed after 17 years, while the aluminum hoppers still had years of service left after 30.

Long life, extra payload—up to 8 tons in a 100-ton car—and low maintenance are some of the features that aluminum offers the transportation industry. The men who know aluminum best are at Alcoa. To find out more about the advantages of aluminum, send this coupon.

Aluminum Company of America
1750-G Alcoa Building
Pittsburgh, Pa. 15219

Gentlemen: Please send me information on ☐ corrosion studies; ☐ economies of aluminum-bodied coal cars.

Name _____

Company _____

Address _____

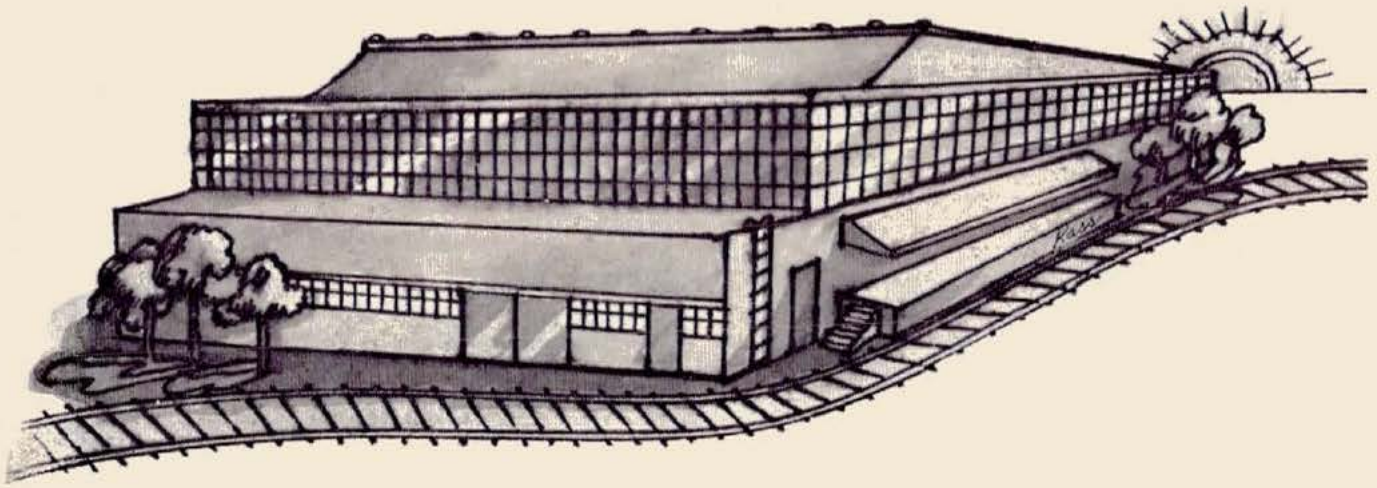
City _____ State _____ Zip _____

Change for the better with Alcoa Aluminum

ALCOA

Circle 12 on coupon page 48

How can Penn Central help dealers stock less and sell more?



The appliance industry is finding out.

We can do it because of our new, more efficient streamlined rail service.

Appliances from the production line now move fast to central distribution points. This means improved merchandise turnover.

But that's not all there is to the new Penn Central total distribution program.

It also includes 60-foot high-cube cars. Lower-per-unit rates. And strategically placed warehouses to speed up delivery of merchandise.

Penn Central's new, more efficient distribution program for the appliance industry is just one example of the way our marketing specialists are responding to the nation's distribution challenges.

Our approach involves evaluation of the product, the industry, and the market place.

Through creative systems analysis, we formulate the best solutions for your problems of distribution.

And the careful research we've directed to appliances can be applied to any industry.

That means we're ready to accept your challenge.

PENN CENTRAL

Circle 13 on coupon page 48

HOW SHIPPERS CAN BOOST CAR SUPPLY:

"Keep it moving—keep it clean"

JULY TRAFFIC POLL

What are the most effective steps shippers can take to help increase the supply of available freight cars?

1. Load or unload cars in minimum time 33*
2. Release all unloaded cars in clean condition for immediate reloading 32*
3. Load all cars to maximum capacity 21*
4. Make more accurate requests for the number and type of cars required 21*

*Number of mentions.

Railroads get most of the blame for the freight-car shortages that perennially plague the shipping community. But shippers themselves are not without blemish, and they candidly admit it.

Railway Age's July Traffic Poll asked industrial traffic managers across the nation: How can shippers unclog their half of the two-way street of improved car utilization? Respondents agreed that two major areas within the control of shippers and receivers demand attention:

1. Loading and unloading cars faster and getting them on the move again.
2. Releasing cars in cleaner conditions than is now generally the case.

Heavier loading of available cars, and greater accuracy in forecasting car needs, also got frequent mentions as avenues of improved car supply.

● **The majority opinion.** J. J. Kelly, manager of distribution operations for C&H, San Francisco, summed up the majority opinion: "The loading and unloading of cars in the minimum amount of time is certainly one of the most important ways a shipper or receiver of freight cars can increase car supply. Releasing of cars in clean condition is next in importance from the shipper-receiver standpoint."

The dirty-car problem got the first-place vote of Henry M. Karel, director of transportation for the Cleo Wrap Corp., Memphis: "Assuming there are no outside influences affecting the relationship between the shipper and the carrier, the most effective step a shipper can take to help increase the supply of serviceable freight cars is to release all unloaded cars in a clean condition." Particularly bad offenders, said Karel, are those shippers—"for example, in the building trade"—who only receive cars and therefore, "never having to load any, leave them in a deplorable condition."

● **Inflated forecasts.** Cleo Wrap's Karel also complained that "most of the service orders put out by the Interstate Commerce Commission in order to help one segment of the economy ultimately affect another area of the country." This leads some shippers to order "more cars than required in order to get what they need, plus reducing the number of available cars."

Arthur V. Krone, manager of transportation for the Ashland Chemical Co., Houston, suggested: "Better inventory control and production planning by customers would help as it would allow more time between the date the order is placed and the date shipment is required. Some cars are in tight supply and a good many shippers will order a few more cars than they need in order to assure enough to meet customers' tight shipping schedules." He also noted that "frequent changes in shipping schedules by customers causes holding of cars."

● **Loading incentives.** A major western shipper, who asked that his name be withheld, called for rate incentives to induce heavier loading of cars: "The greatest possibility for increasing car supply is in loading cars to maximum capacity. Carriers can control this by offering proper rate incentives—for example, a 5% rate reduction for every 10,000 pounds additional over tariff carload minimum on packaged goods. Bulk loading rate incentives could be specifically published."

● **Flexibility.** E. S. Rosenzweig, traffic manager of Longview Fibre Co., Longview, Wash., thinks shippers are too rigid in specifying certain types of cars. His suggestion: "Be more versatile in the type of car requested, thus giving the carrier more choice. Rather than insist on a compartmentized car, use standard D.F. or plug-door box car and make use of inflatable dunnage in lieu of a specially equipped car."

John McFadden, corporate traffic manager of R. R. Donnelley & Sons Co., Chicago, would reduce the number of cars in assigned service: "They produce too much empty mileage." He would also "reduce TOFC rates to box-car rates in areas of tight car demand; or allow substitution of TOFC trailers at same rates as box cars, when box cars are unobtainable."

● **Whose responsibility?** Many shippers participating in the July Traffic Poll, while conceding that there is much that shippers and receivers can do to help relieve shortages, made it clear that they feel the largest opportunity for improvement lies within the grasp of railway management.

Several shippers cited the need for improved maintenance. "Railroads should improve inspection of their fleet; there are too many delays because of inadequate maintenance," asserted Lee A. Christiansen, director of general traffic for Sun Oil Co., Philadelphia. "Have the railroads escalate repair facilities on damaged cars," suggested A. M. Buchanan, general manager, K. C. Foods, North Little Rock, Ark. "Carrier maintenance and repair programs on a sustained basis are important," said W. D. Gordon, manager of transportation and purchasing, Shenango Inc., Pittsburgh.

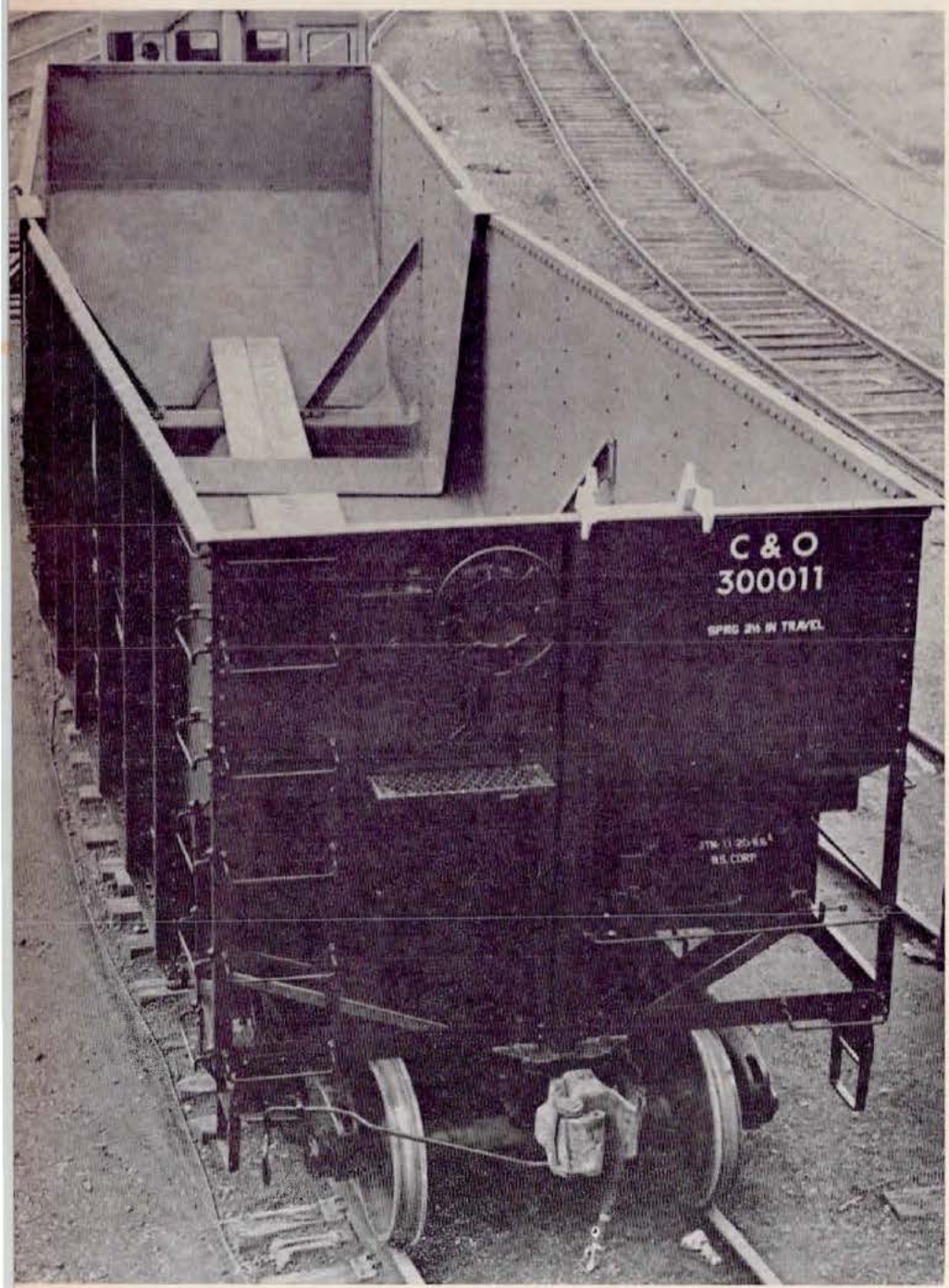
Terminal delays were mentioned frequently. "We have had cars loaded that will take seven to ten days to get out of town after they are turned over to the

(Continued on page 56)

LOW CENTER OF GRAVITY

Short wheel base trucks at car ends and effective use of cube over center truck yield very low loaded center of gravity.

Articulation: New C&O car



FLEXIBLE, OPEN BODY

Tracking tests (with temporary platforms inside car) showed articulated hopper able to traverse short-radius horizontal and vertical curves in Johnstown yard.

Joint development with Bethlehem Steel has produced 125-ton open-top hopper car.

A 125-ton articulated hopper car, built by Bethlehem Steel for Chesapeake & Ohio, will soon be hauling coal in revenue test service.

This three-truck, 52-foot open-top prototype has been developed as a means of pushing capacity beyond limits currently imposed on coal cars sitting on pairs of two-axle trucks.

The flexible joint at the experimental car's midsection permits it to bend around curves. The short spans between truck centers, along with its low silhouette, increase stability and counteract any tendency to rock and roll when heavily loaded.

Among other advantages, the new-design car can traverse short-radius horizontal and vertical curves routinely.

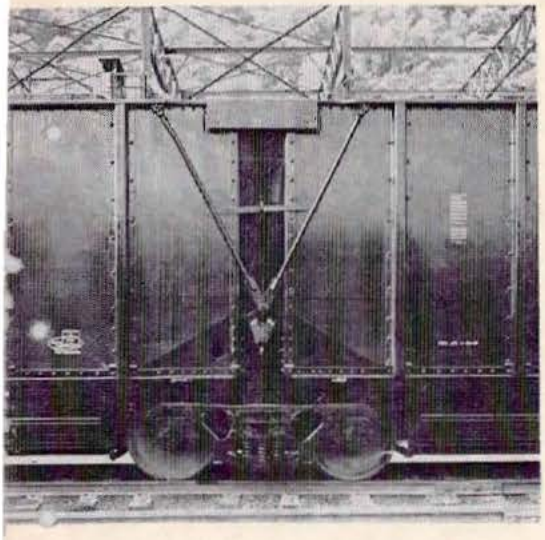
● **Challenge of costs.** John G. White, Jr., Bethlehem's manager of sales—railroad products, stresses the fact that a significant portion of railroad costs in coal transportation are sensitive to the characteristics of the cars used.

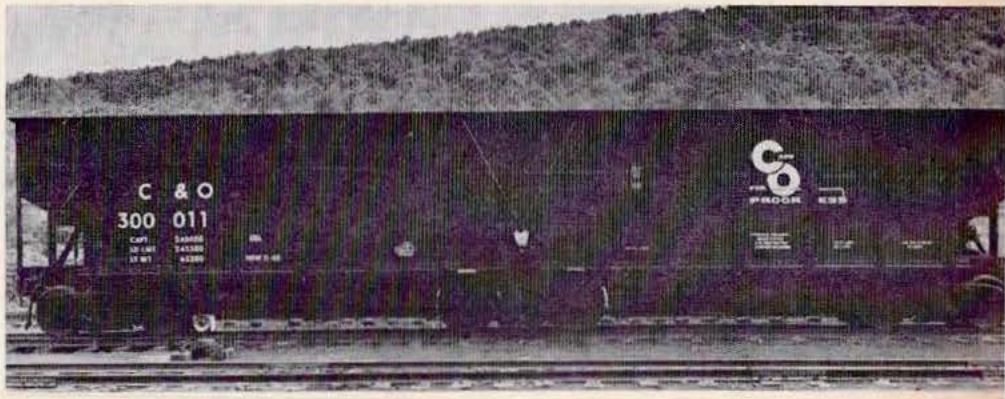
In the face of challenges by coal conveyors and slurry pipelines, and by nuclear generating stations, railroads are being squeezed to find ways to move coal at the lowest possible cost and still earn a profit. Recently car capacity has been pushed up in an effort to hold the line on capital costs, handling costs and maintenance costs per ton hauled.

The goal of Bethlehem's development is to increase significantly the effectiveness of coal cars while eliminating problems inherent with some of the recent designs.

"The developmental car," explains White, "has successfully hauled over 122 tons of coal at normal operating speeds, meeting all design objectives. It is about 7 feet longer than most 100-ton cars but is almost a foot lower. Its

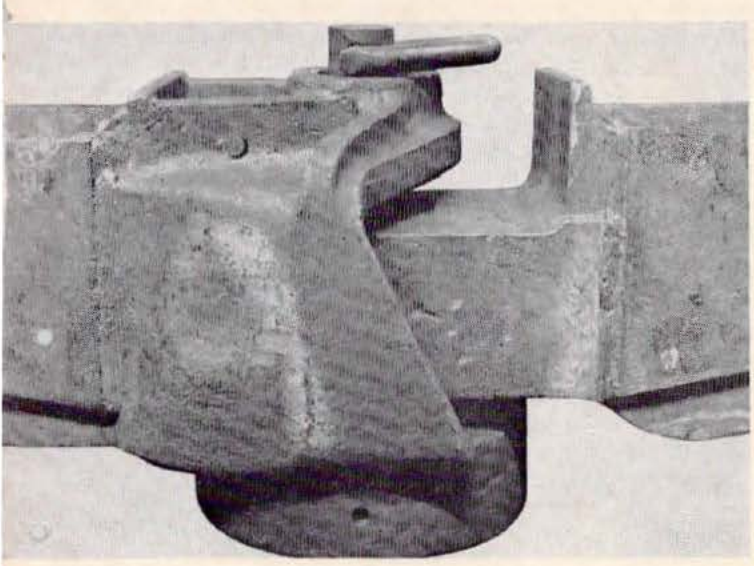
will turn corners

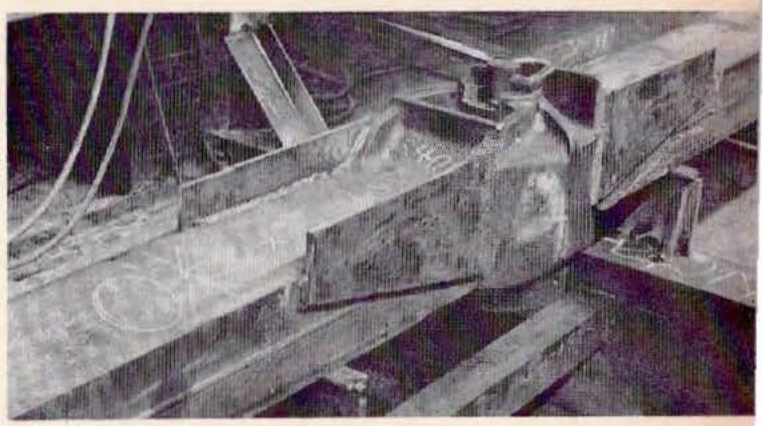




HIGH-CAPACITY TRUCK AT CENTER

Flexible body connection, composed of steel plates, has operated satisfactorily under load. Because of problems which might develop if truck had to be repaired while car is loaded, body is to be modified with cross sheets across inner ends of units.





ARTICULATED CONNECTION

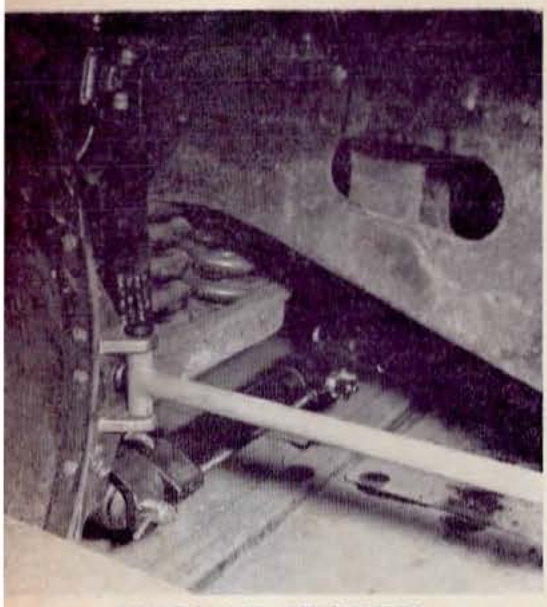
ASF articulated connector has six parts, rests in center plate of single truck. It was welded into box-section center sills (right) of two units making up the car.

articulation and greater length is distributed over three trucks to reduce the truck-center distance. It hugs the track better."

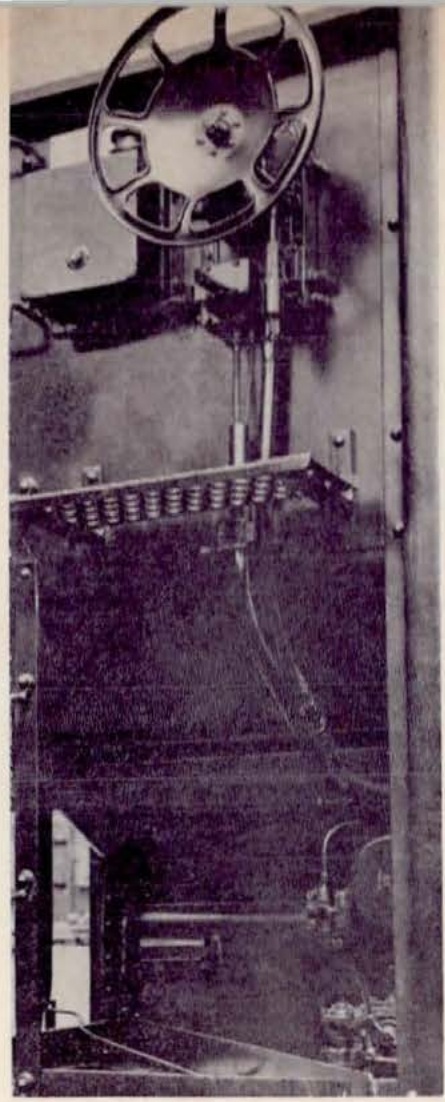
● **Future unit trains.** "Features of this articulated, open-top hopper car will undoubtedly influence the design of future freight cars and unit trains," predicts Dr. H. N. Laden, C&O's assistant vice president—research. "The car is not only a technological milestone; it is also a symbol of what can be achieved in railroading by railroad/supplier joint efforts. The railroad industry needs massive technological innovation to enhance its competitive position; the supply industry needs healthy railroads reaching for new products. There is room for many supplier/railroad cooperative efforts as exemplified by this new car."

Dr. Laden traces the car's origin to the decade of the 1950s when his predecessor at C&O, K. A. Browne, investigated the possibility of using single-axle trucks under permanently coupled articulated coal cars with curved sides. Technical and commercial impediments then prevented the concept from getting off the drawing board.

During the 1960's, however, it has been a different story. Conventional hopper car capacity rose from 50 and



HYDRAULIC CYLINDERS
Pneumatic-hydraulic brake system has high-pressure hydraulic cylinders suspended between wheels and over rails.



NEW HAND BRAKE
Hydraulic hand brake acts on all 12 wheels of car with cylinders maintaining application even if pressure is lost.

70 tons to 100 tons. Interchange limits on axle loads seems to have stymied further progress. Over four years ago C&O research concluded that a new approach was needed and turned again to the multiple-unit coal car.

● **Concept revived.** After a period during which C&O researchers convinced first themselves, and then their superiors, the articulated car project was authorized and funded. Because the research group is not organized for detailed engineering, nor for the construction of prototypes, and because the C&O/B&O car department was heavily committed already, the project was authorized to solicit bids from carbuilders for participation in a joint development.

"Embedded in the car," adds Dr. Laden, "are the fruits of cooperation between Bethlehem and C&O in the solution of many problems.

"Other railroad suppliers have been involved also," he continues. "Among the novel aspects of the car is the articulated joint and coupling provided by American Steel Foundries (RA, March 31, p. 48). The pneumatic-hydraulic brake system is an innovation of New York Air Brake. This is the first freight car in American railroad service to depart from the traditional pneumatic system. Also interesting are the longitudinal hopper doors and their opening-closing mechanism—the brainchild of Ken Browne of Protomach, Inc."

● **Still being appraised.** Dr. Laden reports the car is still undergoing design and test appraisals to prove the principle of articulation as it applies to cars of unusual length.

"Commercial feasibility of this application has not yet been determined," he explains. "This evaluation awaits completion of design changes now in process, final engineering drawings and a detailed study of construction costs."

Bethlehem's White adds that no figure on the car's cost is now available, but that "we hope it will be economically attractive."

The technology of the car already seems pretty well confirmed. After curving and tracking tests at the Bethlehem Johnstown, Pa., plant, the hopper's stability was demonstrated in over-the-road operation on the B&O between Johnstown and Somerset, Pa. It then went to the Technical Center of National Castings in Cleveland, Ohio, for impact tests and was next transferred to the AAR Research Center in Chicago for squeeze tests, both loaded and empty. Finally its stability was confirmed on the AAR test track, a spur of the Louisville & Nashville located just outside Frankfort, Ky.

● **What tests showed.** So far the car has shown itself capable of traversing 150-foot radius curves and negotiating a 160-foot vertical curve such as there would be at a coal dumper. While its trucks are fitted with 2½-inch-travel springs (100-ton hoppers must have longer travel springs to enhance their stability), the car has been operated at speeds from 5 to 40 mph under full load without demonstrating any resonant roll characteristics.

Gus Holabeck, Bethlehem's chief engineer, ascribes this stability to the 81-inch-high loaded center of gravity (conventional 100-ton hoppers are over 90 inches) and the 22-foot truck centers—well under the 39-foot rail length which excites car rocking.

The car has successfully resisted squeeze loads in excess of a million pounds and pulls of over 600,000 pounds.

While the ASF connector weighs considerable less than a set of couplers, yokes and draft gears it replaces, it is actually up to 2½ times stronger. Unlike previous articulated connectors for freight cars, this one sits in the bolster of a single two-axle truck which supports the inboard ends of the two units. Because C&O required that the wheel loads not exceed those for a 100-ton car, it was necessary to use a 100-ton truck under this center connection and 50-ton trucks under the car ends. Such an arrangement established the gross rail load of 208,500 pounds.

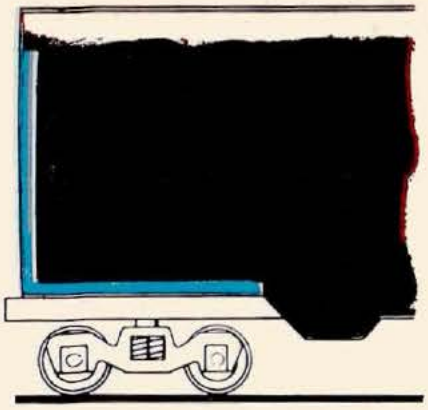
Other design parameters were minimum weight, maximum cube/length ratio, low center of gravity, and full compliance with AAR car specifications and FRA regulations.

● **Maximize cube/length ratio.** The short 26-foot body lengths have permitted maximum body width which is further enhanced by special shallow side stakes. The short wheel base of the 50-ton outboard trucks, which themselves have been located as close as possible to coupler pulling faces, combined with the short slopes that are possible over the single center truck, have served to maximize the cube/length ratio.

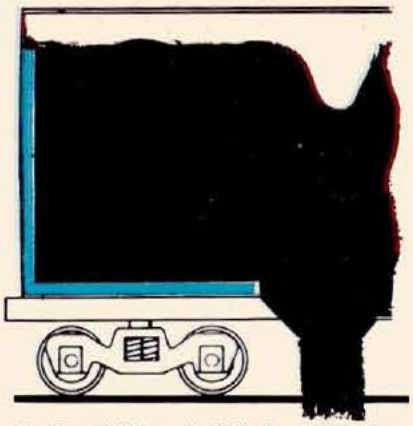
Holabeck points out that while the car's inside length is only about 15% greater than that of a conventional 100-ton car, its volume has gone up 22% and its loaded center of gravity has dropped 10%.

The flexible body joint over the articulated center connection, which has produced the 52-foot open body, is composed over overlapping steel plates which have been shown capable of

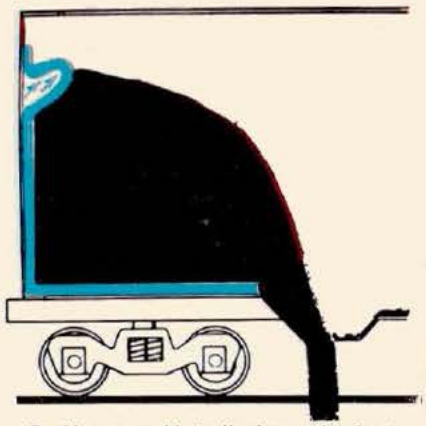
(Continued on page 55)



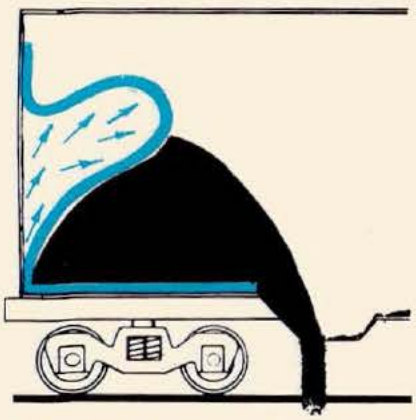
1. Fully loaded car end shows lading over truck. Blue line is air bag.



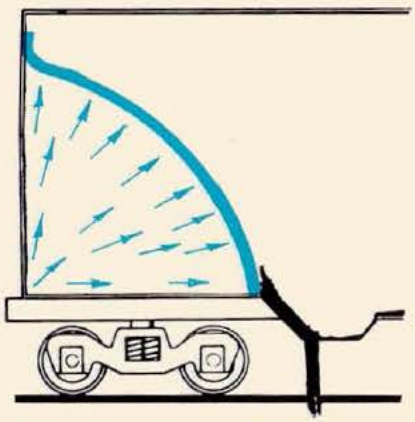
2. Free-fall "gravity" discharge empties most of car's content.



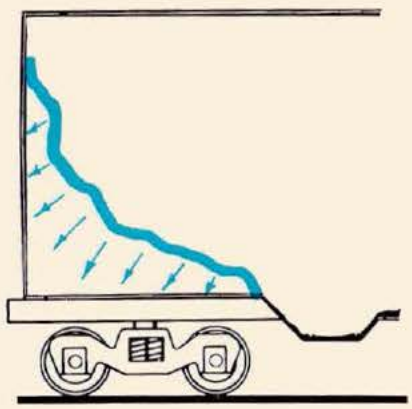
3. Air pumped into diaphragm begins to force out lading in car end.



4. Moving downward, continued inflation pushes lading toward outlet.



5. Fully-inflated air bag clears the 10-ft. shelf area in end of car.



6. Unloading finished, diaphragm is deflated and ready for new load.

Action in the end zone: A bigger covered hopper

Carbon black, the sooty black powder that makes up about 25% of the automobile tire, has done it again. Ever since this commodity began moving by rail in bulk form, the lightweight and extremely sensitive petroleum by-product has been influencing a gradual step-by-step development of bigness in covered hopper cars.

Now, true to form, carbon black has inspired development of another covered hopper—one whose 7300-cubic-foot capacity seems to rate as the world's largest.

This rail giant, newest edition of a car design called Granu-Max, has been built for the J. M. Huber Co., a leading carbon black manufacturer, by Thrall Car Manufacturing Co.

The Chicago Heights, Ill., carbuilder has just completed delivery of ten of the new prototype Granu-Maxes, and has scheduled another 31-car production run, also for Huber, later this year.

Carbon black producers have been seeking larger covered hopper cars in recent years to aid them in overcoming the problems created by their own ingenuity in product development and improvement. The industry's research and development activity has led to a wide range of increasingly lighter-weight carbon-black grades. Some grades now approach a density of 19 pounds per cubic foot—compared, for example, with ordinary coal which may go as high as 55 pounds per cubic foot.

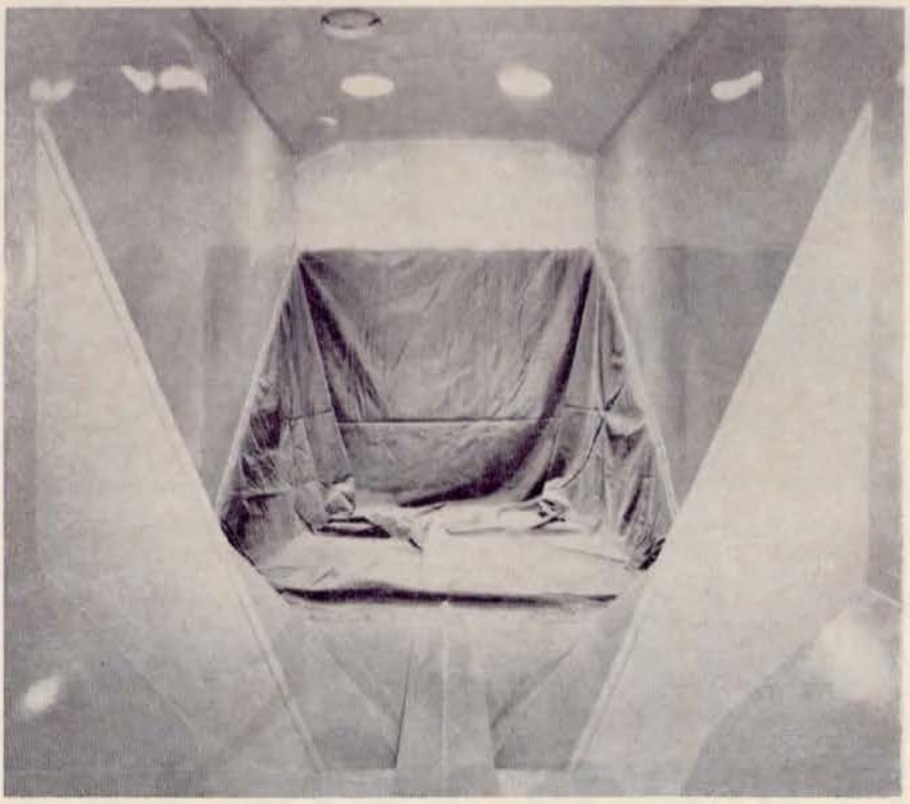
The new lightweight grades of carbon black have found wide acceptance by carbon users and are in volume production. As a consequence, the producers, when shipping such lightweight black, are unable to meet minimum carload requirements for the most favorable tariffs—even when loading the largest existing covered hopper cars.

● **$200 million market.** Annual U.S. production of carbon black hovers around the 3-billion-pound mark. Huber, which captures about 10% of this $200 million market, has been holding steadfastly to a unique philosophy regarding its production. Some producers have been moving their production plants closer to major user centers, and for the most part transporting the essential raw materials by barge. Huber, on the other hand, maintains that it is more economical for all concerned if carbon black production is carried out at locations where the raw materials are abundant.

"We feel this is the best way for us to merchandise this product," says L. Gongwer, Huber's divisional sales manager—industrial products. "It is essential, though, that we have the proper rail vehicles which can transport the finished product at rates which keep us

COVERED HOPPER WITH A BOX CAR LOOK

Secret of squared ends of the jumbo unit—said to be the "world's largest covered hopper"—is the patented Granu-flator diaphragm (below) at each end of the car.



competitive with those producers who choose to have their plants close to customer's plants." A car with Granu-Max's carrying capacity offered a solution to this problem.

Thrall's new Granu-Max car really doesn't look like it should qualify for the title as the world's largest covered hopper. As a matter of fact, at first glance it doesn't even look like a covered hopper. Its full sides, which are squared off at the ends like a box car's, tend not only to disguise its covered hopper function but also to shield the secret of high cubic capacity that's squeezed into a relatively short car body length.

● **Receive 20% rate reduction.** The new Granu-Max's super capacity has already resulted in a 20% reduction in selected rail rates for transporting carbon black. The Southern Freight Association and the Southwest Freight Bureau authorized the reductions, and it has been hinted that other rate-making groups will be following the same pattern.

In the 20-year period from 1949 to 1969, shipping rates for carbon black, for example, from Borger and Eldon, Tex., to Gadsden, Ala., have dropped from $1.47 per hundredweight (cwt) for minimum carload shipments of 40,000 lbs., to $.66 per cwt. for minimum loadings of 140,000 lbs. Aside from Gadsden, new rates now apply also for such destinations as Royal City and Tuscaloosa, also in Ala.; Union City and Edenwold, Tenn.; Firestone, Ga.; and Mayfield, Ky.

Unlike the standard covered hopper car which has sloping end floor sheets to permit unaided gravity discharge of ladings, Granu-Max has flat end floor sheets located at the same height above the rail as the side sills. A shelf, about 10 ft. long, is created at both ends of the car, and herein the car gains its added loadable space. While the shelves permit utilization of what would otherwise be dead space on a standard covered hopper car, they also create a need for some special apparatus to aid the movement of the lading off the flat areas and into the car's end discharge outlets.

● **Floors seem to retract.** A pair of flexible and inflatable diaphragms, called Granu-flators by their developer, B. F. Goodrich Co., act more-or-less as retractable end floor sheets, and move the lading to the outlets as they are inflated. In their deflated state, they lie perfectly flat at the squared off ends of the car. The principle of operation is similar to that of the Flexi-Flator grain and grain products car developed by New York Central (RA, Aug. 8/15, 1966, p. 29).

Unloading in a hurry

In a typical unloading situation at a receiving point, after as much of the lading as possible is discharged by straight gravity, the Granu-flators are inflated with low (1 psi) pressure, but high volume air. The gradual inflation of the diaphragms tends to nudge the lading at the top of the pile toward the hopper outlets, and, as this discharge process continues, the pressure of the lading against the bag decreases, whereupon the air pressure behind the bag causes it to inflate further until all the material is discharged and the bag is fully inflated, explains C. A. Mapp, Thrall's executive vice president. It takes about 11-12 minutes to clear the lading off one end of the car.

Although it's not absolutely essential that the seals between the diaphragm and the car interior be air-tight, Thrall is attempting to come reasonably close to this objective. The less air that escapes means less stress on the motor-blower producing the air.

Each diaphragm is secured to the car interior with steel straps and Huck bolts. Air for the Granu-flators is supplied by an on-board blower with 100 cfm capacity. The blower's power comes from a 1-hp motor, also on board, which is operated by commercial 110-

volt current supplied at the unloading site.

The air line to the Granu-flators is arranged so that it may be connected to either the outside of the blower for inflation or on the inlet side for deflation. The deflation cycle assures that the bag will be smoothly and completely retracted against floor and sides.

● **All available space used.** Although the inflatable diaphragms make possible the utilization of all the space within the outline of the car body, their presence also results in another problem—one of finding areas on the car for location of not only the compressor and motor for the Granu-flators, but also for air brake equipment.

"With the Granu-Max design, you lose that area beneath the end slope sheets which has always been so convenient for the location of air reservoirs, valves and things of that nature," Mapp said. "Because much of any covered hopper car's underbody area is taken up by the hopper chutes, our engineers had to do some fancy fitting to get all the equipment on the body structure."

The principal dimensions of the 7,300 cu. ft. Granu-Max car are: length—67 ft. 9 in. over strikers; width—10 ft. 1 in.; and height—15½ ft. It fits the Plate C equipment diagram. Equipped with 28 16-in. circular hatches, eight special, centerline-located discharge outlets and epoxy lining, the mammoth car is also fitted with 100-ton trucks. The small hatches, as well as the small outlet gates which, incidentally, were designed by the Huber Co., were selected because of the extra care which must be taken to prevent contaminents from getting into the carbon black.

"Moisture, dirt and any other foreign particles must be prevented from getting into shipments of carbon black," Gonger added. "There are many reasons for this special care, but the most important one has to be safety. It's possible, for instance, that a foreign element could prevent a tire tread from bonding properly to an automobile tire carcus. Everything humanly possible is done to assure carbon black's purity all the way through from production to end use."

Back in the '50s, many carbon black users installed special receiving systems at their plants to handle shipments arriving in three-compartment covered hopper cars. The discharge outlets on these cars were located on 12-ft. centers, and the receivers arranged their receiving inlets to match this dimension. One such car was a 4727 cu. ft. covered hopper designed and built by Thrall in 1965. In 1967, seeing the added cubic capacity which could be gained by flattening out the end floor sheets and then equipping the car with Granu-flat-

(Continued on page 54)

LUTHER MILLER

AS THE EDITOR SEES IT

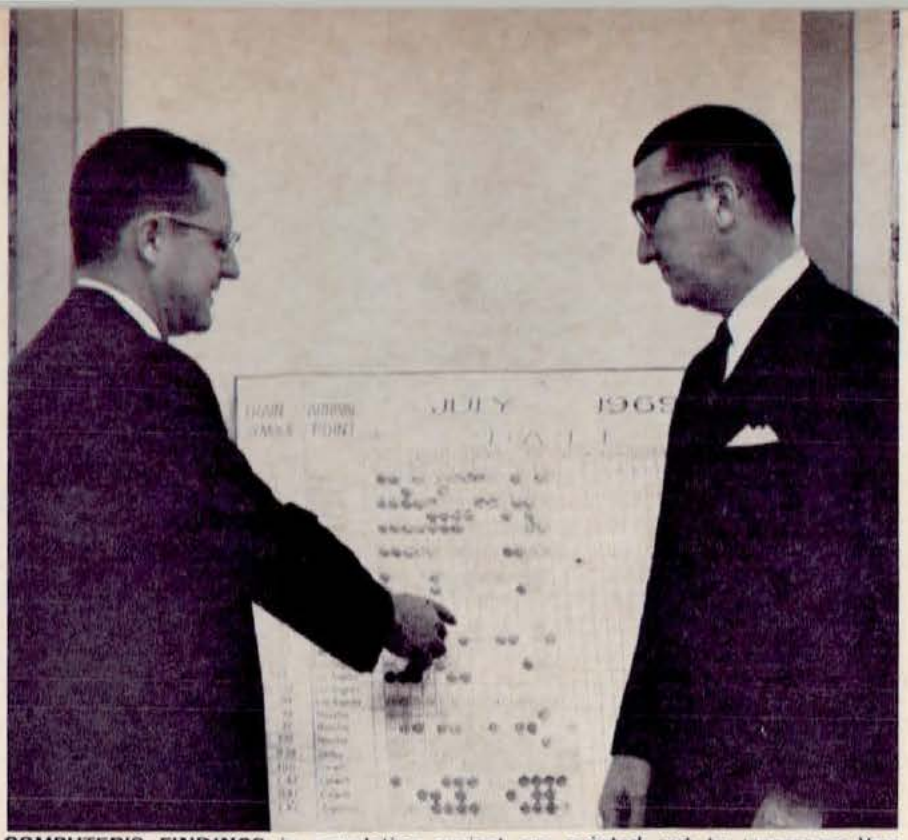
PASSENGER-TRAIN PARTISANS fall broadly into two groups: (1) those who claim that railroads are really making money on passenger service, and only want to abandon it because they can get rich quicker as freight-only carriers; and (2) those who say that if the railroads *are* losing money, it is simply because they won't operate, advertise and promote the kinds of trains the paying customers want. "Look at Canada and France!" is the most frequently-heard rallying cry of group No. 2. Reports emanating in recent days from Washington, Montreal and Paris must have come as quite a shock to both camps.

IN WASHINGTON, THE Interstate Commerce Commission, which has not been overfriendly to railroads on the passenger question, released a cost study that painted the picture an unmistakable red. Any way you look at it, said the ICC, passenger trains are losing money heavily, and if the people want them the people are going to have to pay for them—just as they are now paying, in direct and indirect subsidies, for the highways and the airways that have bled these trains of their profitable traffic.

IN MONTREAL, the Canadian National, prodded by a U.S. business magazine, confirmed what insiders have suspected for months and have known for weeks: CN's gallant, costly program to put passenger service on a paying basis, through improved schedules, fare incentives and better equipment, just hasn't worked. CN is now reported ready to seek abandonment of all services that the government won't subsidize. (The handwriting was on the wall a year ago: See "What has the CN proved?", Railway Age, July 15, 1968.)

IN PARIS, the French government, alarmed by rising railway deficits, announced a plan for wholesale abandonment of money-losing passenger trains. France proposes to shift one out of every six riders from rail to highway, creating railroad- or privately-chartered bus services for that purpose.

THIS DOES NOT MEAN that Canada and France will not continue to have good, fast trains. It means that they will have good, fast trains only where there is a demonstrated need, and where the government is willing to pay the difference between income and outgo. We can also have good trains in the U.S.—on the same basis. But we will not have them as long as an emotional attachment to the past blinds us to the realities of today, and the promise of tomorrow.



COMPUTER'S FINDINGS in simulation project are pointed out to Operating Vice President Larry Cena (right) by T. D. Mason, special assistant. Computer is at Topeka.

They're testing out a railroad on a computer

QUESTION: What railroad vice president-operations has a Ph.D candidate from the University of Chicago on his staff?

ANSWER: Santa Fe's Larry Cena.

QUESTION: What's the Ph.D aspirant doing there?

ANSWER: He's working with experienced personnel in research and information systems. The goal is greater application of management science to railroad problems through a broadened use of the computer—in effect, a reconstruction of the railroad, and its operations, in the machine.

QUESTION: Is Cena mad?

ANSWER: Not at all. He's convinced that the computer can give railroad managers even more help than it now provides. He wants that help. He and Santa Fe are willing to spend the money to get it. And they're willing to risk a few failures along the way because success would be so good.

There's nothing particularly new or different about "simulation." Railroad men have been practicing it for years —most often by seat-of-the-pants logic, but now more often with the aid of the computer which has tremendous data-storage capacity and computation capability.

Roads such as Canadian National and Frisco have made extensive use of simulation techniques. Illinois Central is developing cost simulation into a fine art. And Santa Fe is taking dead aim on a project which, Larry Cena admits, amounts to virtual rebuilding the railroad inside the computer.

● **Through the ranks—but . . .** Cena is an uncommon operating man. He's followed the more-or-less traditional path to the vice president's office—transportation inspector, trainmaster, superintendent and on up—but his concepts could never be confused with those of a tradition-oriented operating officer.

It was in the early 1960s—during a hitch as superintendent at Arkansas City, Kan.—that he became hooked on the potential in operations simulation.

The beginning was modest. ATSF people took a stretch of railroad between Emporia and Wellington, Kan., and started building a statistically-correct model. Every variable that came to mind was taken into account—not only those connected with power and train consist but also such elements as the effect of slow orders and local speed-restriction ordinances, and even the effect of wind on train operation.

"By the time we got through," Cena says, "we could plot the running of any kind of train, and hit it to the minute. And if we were off, if the actual operation didn't match what we said it would be, we tore things apart until we found out why."

● **How to figure it out.** Predictably, not everybody shared his confidence in this kind of playing with railroads. Skeptics wondered how simulation could take into account journal failures, for instance, or other unusual delays. The answer, of course, is that there's no sure way to build-in these factors. But, Cena points out, there's no real need to crank-in a condition which exists so rarely. And he comes back with what has become the thesis for Santa Fe simulators: "If you work long enough and test long enough, you can get perfect programs."

From the Emporia-Wellington start-up, Santa Fe people began adding more of the railroad to the data bank—first, the line between Emporia and Kansas City; then, in steps, the line all the way into Chicago. Eventually, western and southwestern lines were added.

T. D. Mason, special assistant to

(Continued on page 37)

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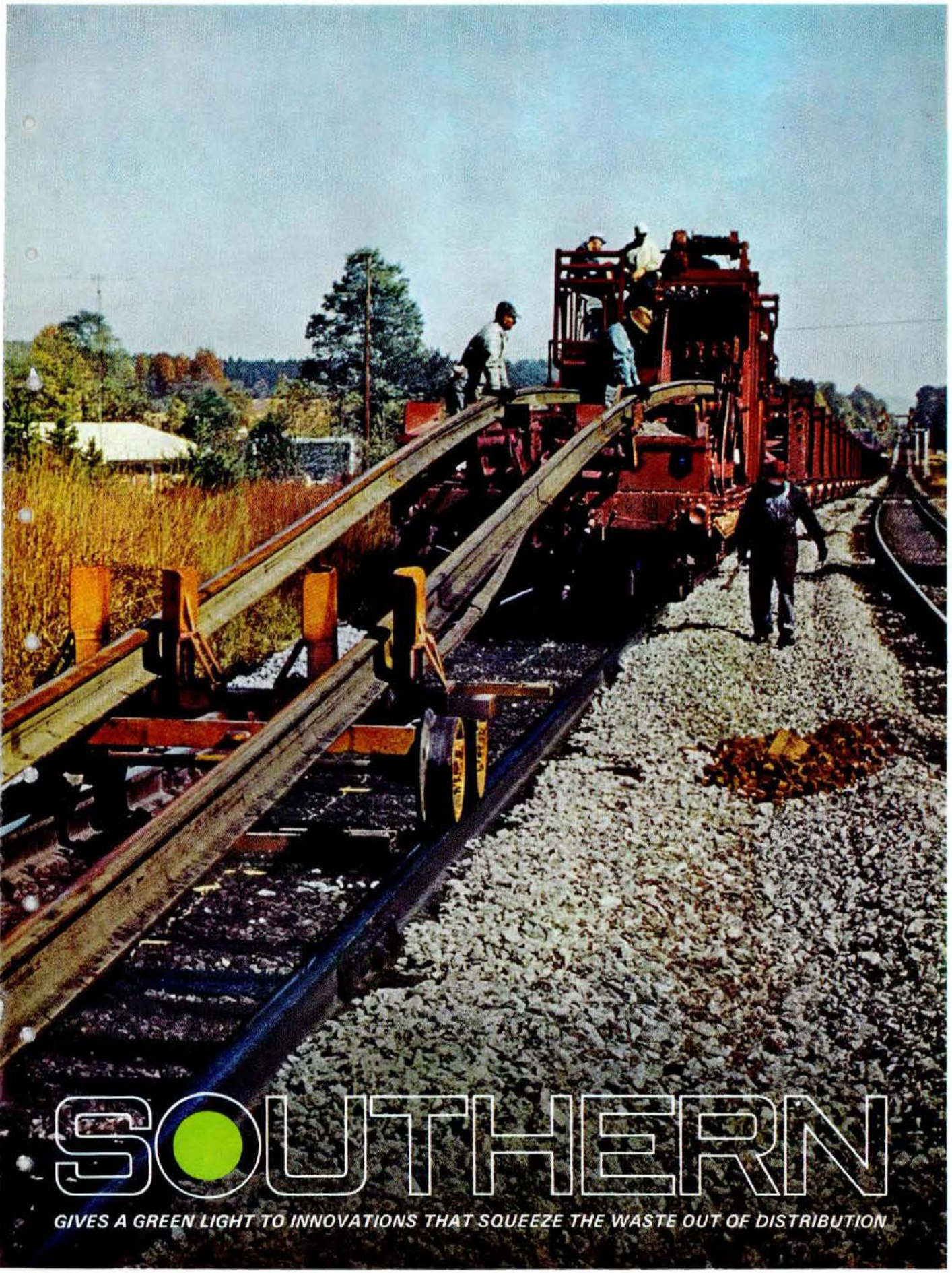
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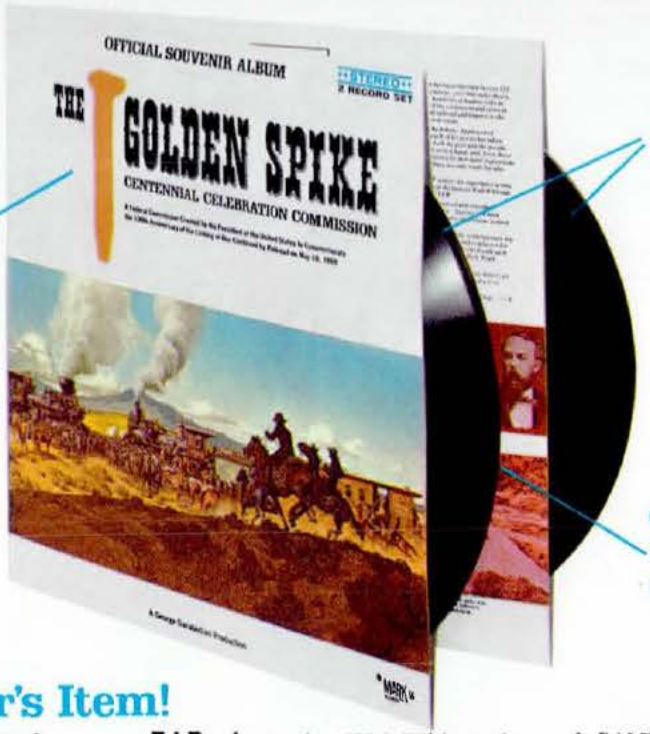
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"WE CAN SIMULATE A NEW YARD BEFORE WE BUILD IT . . ."

(Continued from page 28)
Cena in the operations research area, describes the present setup as two basic simulation programs "which are the building blocks we'll use in getting to a full network simulation."

● **What the programs do.** One program provides time/fuel measurements. Every significant physical characteristic of all Santa Fe main lines and the important secondary lines is in the data bank. There's also a library on the locomotive fleet, including performance characteristics, acceleration curves and so forth for each type of power.

On the input side, Mason points out, "we can build any type of train desired, down to fine detail—number and type of cars, tonnage, number of roller-bearing cars in the consist, type of power and number of units and so on. We can work in the variables, the other effects of movement—and by the way, that wind factor is a more important one than it might seem at first glance."

What Santa Fe gets from all this is the ability to simulate virtually any consist under virtually any kind of operating condition—and come up with precise measurements on time between terminals, time between stations, time between breaks in grade, time between any two given points. Fuel consumption can also be gauged on the same basis—and from tinkering with fuel needs and fueling practices, Santa Fe is already getting substantial dollar savings from its simulation program.

● **Where to make a saving.** What's ATSF doing differently? Too often, Cena says, railroads fuel locomotives "like your wife gets gas for the family car—every time she sees a filling station, she gets the tank filled. If you do this with a locomotive, for one thing you wind up burning fuel to haul fuel around. So we've set limits on the amount of fuel to be taken on at given points." And the savings? "We're saving a little time here and there—which quickly adds up to a lot of time. And those minutes saved translate quite readily into a saving on fuel itself. This one simple step has enabled us to offset fuel price increases and still buy a better grade of fuel."

Measurements leading to changes like this, Ted Mason adds, "could only come from the computer program. We have fuel consumption figures between any two points. You put in that information, along with fuel cost data and the cost of carrying fuel in the locomotive, you discount for the effect of having less weight-on-drivers with a lighter fuel load—and you come up with optimum fueling schedules."

The second current program involves braking measurements. Santa Fe's entire signal system is in the data bank, along with information on physical characteristics of the line in advance of each signal. By simulating runs with various power and train consists, operations research people can test to be sure that operations are conducted within safe tolerances.

● **Next, a marriage.** Next move by the researchers, Mason says, "is to marry these two programs, and also to add factors of traffic congestion." In this kind of simulation, measurements can be made of the effect on a given train of conditions far in advance of it.

Then will come the full network simulation. There's no set timetable for this—Mason describes it as a long-range goal, one involving painstaking study by Santa Fe people of a full range of simulation techniques of their own, of other railroads, of other transportation companies.

"The more we look at, the more we find that we can use," Ted Mason says. "You can't just go out and buy somebody else's program—but you can pick up bits and pieces that you can use to good advantage."

In all this, there is one thing for sure: Larry Cena knows what he wants —and what he wants will touch on far more areas than just those concerned with train operation.

● **Simulation for planning.** For instance, he'll say, "look at the problem of allocating the available dollars for capital improvements, or for maintenance. Say we're planning to build a new yard. Now, you develop a plan and you figure what it will cost and you try to figure your return on investment. What we want to get is a way to simulate that yard so we can tell what kind of service it will provide and what we'll get for our money if we spend $16 million—or $16.1 million—or $15.9 million—or any other figure you'd care to name. We'll have service and return-on-investment curves—and hopefully, they'll keep us from making mistakes either way, by over-building or under-building."

Maintenance spending will get similar treatment. Traditionally, Santa Fe's vice president says, "there's an allocation of X-dollars for track surfacing or rail-laying or whatever. And every roadmaster on the property thinks he could use the entire amount. What you get is a situation where the squeakiest wheel gets the most grease—and this isn't much of a scientific way to plan. On rail-laying, for instance, we want to develop long-term wear curves, taking into account every change that's taken place since a piece of rail was laid. Then we want to figure-in traffic projections for the far-out future for various segments of the railroad. What we'll have will be a more precise handle on what we have to do."

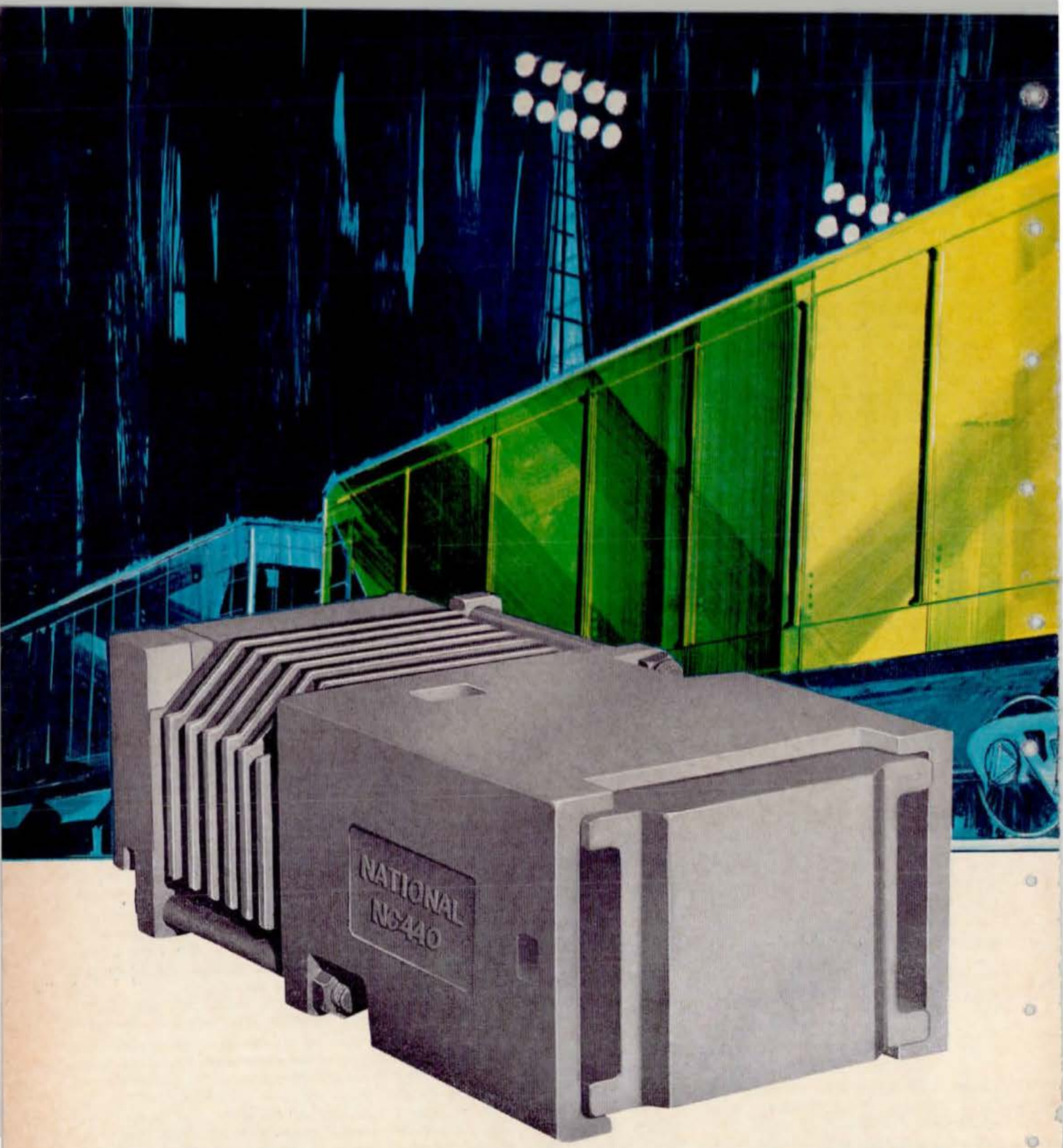
On the train-operating side, Santa Fe is looking for simulation to serve as a service tool. Put most simply, Cena says, "we want to know the best way to run any given train—what cars should be on it, how they should be blocked, what cars can be left for a later train, what consist is going to do the best job for both the railroad and the customer."

Already, Cena points out, simulation techniques have played an important part in planning of an entirely new movement—involving sulfur trains moving between mid-Texas and Gulf Coast points: "We know exactly what we can do and what it's going to cost —even though we have yet to operate a single train."

● **Then, there was "Super C."** He also gets a certain feeling of satisfaction out of the "simulation"—under laboratory conditions via the computer, and in experimental practice—which "Super C" has made possible. Cena makes the point that "Super C" itself was a test-tube: "We could run it and test our programs—doing things with it we couldn't do with other trains—and at the same time make shippers who use the train happy with the service. So far as I'm concerned, our investment in 'Super C' has been paid off, in the tests we ran and the things we proved. And right now, with the new business we have attracted to the train giving us an increased volume, it's also paying off at the cash register."

Ted Mason underlines the point: The TOFC/COFC speedster has provided an invaluable check on simulation; at the same time, simulation runs on the computer have generated on their own "a surprising number of economies—because, you know, you could never run enough actual test trains to develop the information that the computer can accurately turn out."

As for what happens next in Santa Fe's programs, Cena isn't particularly concerned if the scope of what's going on is not fully understood or appreciated. What he is concerned with is the result, and setbacks, failures, abortive efforts along the way are to be expected: "Those men may fail and fail again. But they're going to keep right on trying. We know what we want—and we aren't about to believe that getting it is impossible." ■



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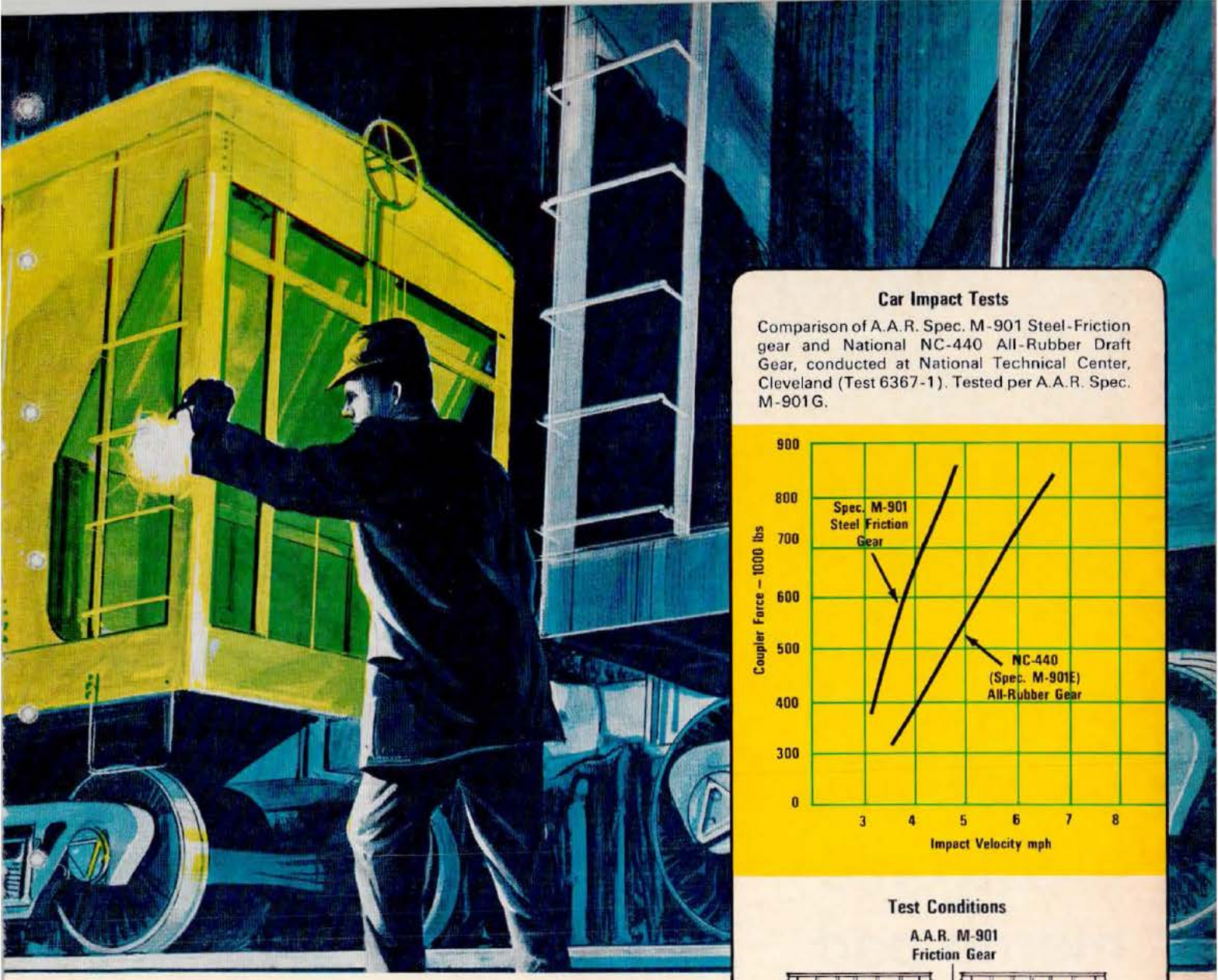

Car Impact Tests

Comparison of A.A.R. Spec. M-901 Steel-Friction gear and National NC-440 All-Rubber Draft Gear, conducted at National Technical Center, Cleveland (Test 6367-1). Tested per A.A.R. Spec. M-901G.

Test Conditions

A.A.R. M-901 Friction Gear

Test Draft Gear — Impacting Car

Both Cars – 70-ton Covered Hoppers Sand Loaded to 220,000 lbs gross

National NC-440 All-Rubber Gear Unconditional Cert. of Approval #44 Re Circular D.V. 1594

	Capacity (ft-lb)	Travel (in)	Force (1000 lbs)
As-Received Capacity (1)	37,900	2.80	515
Official Capacity (2)	37,500	2.84	511
Capacity At 1 5/16" Travel (3)	6,400	1.31	88
Capacity At Maximum Travel	56,400	3.25	806
Capacity After Endurance Test			
At Official Rating Travel (4)	32,900	2.85	398
At 500,000 lbs. Force Level	40,300	3.02	520
At Max. Travel	53,700	3.26	758
Capacity After Sturdiness Test			
At Official Rating Travel (5)	29,300	2.84	336
At 500,000 lbs. Force Level	40,400	3.10	517
At Max. Travel	49,900	3.26	679

Notes:
Data are averages of 5 gears tested.
(1) AAR Spec. requirement 30,000 ft-lbs min. at Rating Travel (500,000 lbs force).
(2) AAR Spec. requirement 36,000 ft-lbs min. at Official Rating Travel (500,000 lbs force).
(3) AAR Spec. requirement 6,000 ft-lbs min.
(4) AAR Spec. requirement min. 80% of Official Capacity.
(5) AAR Spec. requirement min. 70% of Official Capacity.

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WHERE THE ACTION IS—L&N's Radnor Yard, Nashville, Tenn. R. T. Combs, Sr., teleprocessing clerk, starts a message on its way to the road's Louisville computer center as Manager of Customer Services J. M. Robinson (right) observes the procedure. At left are T. I. Crawford, assistant to trainmaster and G. D. McCall, assistant superintendent.

Feeding L&N's new electronic memo pad

Operating information at fingertip is the aim of road's pilot project.

The name is RAMROD. In the language of acronym, it stands for Responsibility Area Management for Realtime Operating Decisions. In the simpler language of Sam Alward, Louisville & Nashville's director of management information services, it represents "a first major step toward giving the operating man a practical way to use the computer—a first major step, if you will, toward perfect running of railroads."

RAMROD has been working for L&N since March, at just one point—Radnor Yard at Nashville. Installations at three other terminals are under study, and Alward can see the day when operating people at eight or 10 yards will have RAMROD's computer-assist available to them.

● **Concept is valid.** This assumes, of course, that RAMROD works as planned at Radnor. But, while the installation is still labeled as a pilot project, Alward is convinced that "the concept has been validated."

RAMROD is an inquiry system—but it's far more complex and selective than the ordinary car-location or car-status inquiry setup. Used as intended, it functions as an instant-information supplier and advisor to the operating officer whose job it is to make the right terminal moves and dispatch trains with the proper traffic mix to give optimum service.

S. P. Strickland, L&N's chief transportation officer, is also one of RAMROD's biggest boosters. The system, he points out, was designed primarily to improve terminal service for L&N customers—and "we're confident of consistent improvement, with the use of this new tool."

● **Designed for planning.** Good operating decisions, Strickland emphasizes, "are only produced by factual information which is immediately available. RAMROD provides a perpetual, up-to-date inventory—and with this, a trainmaster can plan. He can make realistic forecasts of car movements and thus he can bring together consists that achieve the best possible service result."

L&N operating officers liken RAMROD to an electronic scratch-pad. And, Strickland tells his supervisors, "if the proper 'notes' are written on this scratch-pad—that is, if all car moves into and out of any key activity point are transmitted to the computer currently and accurately—then the scratch-pad can be referred to from time to time for necessary information. A person wishing specific data from the computerized scratch-pad can simply describe the items about which information is needed—and the computer will search out just those items which exactly match the exceptions stated."

The inquiry itself goes in as a one-line program under a "-RAM" header. Replies are tapped out in hard-copy from on an IBM 2780 high-speed printer at Radnor. (RAMROD inquiries originating at Louisville, principally empty-equipment location inquiries, are answered on cathode ray tube visual-display units.)

● **Selective inquiry.** With the inquiry system developed by L. B. Mardis, L&N's manager of telecommunications, transportation and mathematical

services, transportation supervisors can be highly selective in their questioning —and they get fast response with no extraneous information.

A trainmaster, for example, can query the central computer: How many cars are in Radnor destined for Louisville Division? He can follow-up: How many of these cars have been in the yard 24 hours or longer.

Transportation supervisors can determine how many cars have been in the yard or in any of its sub-areas in excess of x-number of hours. Car-shop delays can be pinpointed similarly.

Special equipment availability can be quickly checked—down to such specific detail as, for instance, the type of door-opening on hopper cars of a given capacity.

RAMROD can tell yard personnel what trains are in the inbound yard waiting to be classified, and it can run down any train's consist by initial and number to aid in preparing a hump list. It can tell a trainmaster how many loads are in the yard consigned to a specific receiver, and it can poll the yard to list all cars shipped by a specific customer.

The way L&N has RAMROD set up, a block code is applied to every car when it first appears on L&N rails —and the coding stays with the car for the duration of its trip. Detailed equipment coding has also been worked out, by type of car, description and special-feature description. Finally, coding has also been made for the approximately 200 customer pools in which L&N participates, and inquiry can be made either by pool number or by customer name.

● **Answers—when needed.** In reflecting on what RAMROD has done —and how it's done it—Alward puts his finger on several elements. In the past, he notes, "we've had to wait for trends to be established before problems could be spotted. RAMROD gives answers on an as-needed basis."

It's most important, he'll point out, "to start cracking the transportation problem. Transportation people have been our toughest customers in management information services—because they have the toughest problems and the toughest job to do. Transportation people have participated fully in the RAMROD design. Their needs have been factored-in as we have tried to develop the system. And yes, it would be possible for the men on the ground to ignore the system—to not take advantage of the information which is now available. This isn't happening. Transportation people say their needs are being filled to a much better extent than was possible with past applications of data processing to operations." ■

FRANK MALONE

WATCHING WASHINGTON

WHOEVER SAID ICC has no computer may have been kidding. Comissioners have faced two radically different types of on-record questioning by Vance Hartke (D.-Ind.), Senate surface transportation subcommittee chairman. Both times, the answers seemed slightly programmed. At his June 23-24 hearings, Hartke tried to provoke the commissioners beyond quoting the Interstate Commerce Act. He couldn't. In a form of extended hearings, by questioning them individually by mail, he tried to prevent "institutional" answers. He didn't.

HARTKE CHOSE intermodalism, small shipments, passenger service and freight-car shortages as topics. For each one, he picked one group of five or six commissioners. He sent each group one set of questions on their topic only. For example, the same five questions on intermodal transport went to George M. Stafford, Laurence K. Walrath, John W. Bush, Willard Deason and Dale W. Hardin. On just one question was there a shade of disagreement. On the others, the answers seemed to have come from the same disk.

THE SLIGHT DISSENT concerned the seven-year-old intermodal cost-finding case re-opened by ICC in February. *Would* the commissioners develop principles for recognizing and preserving inherent advantages of each mode, Hartke asked. *Should* they do so, he added. Walrath was the only commissioner to say principles will and should be produced. The others cried "still-pending." Stafford, next ICC chairman, said it's "improper" to give views on a pending case. All he would say is the Commission is "seeking to provide" cost criteria. Hardin quoted from Docket No. 34013 about the purpose of the case. However, he did say he's "in agreement" that cost standards should be drafted. Deason said he can't "be certain at this time" about a pending case. He ignored the second question. Bush said he "cannot state" whether the case will develop principles. And he said he's "not at liberty" to state whether principles should be developed from the proceedings.

YOU CAN SAY it's unfair to call one question a mirror of the whole thing. You can say Hartke's questions got the answers they deserved. You can say the Commissioners' bland concurrence reflects a clear view of where they stand. You can look at the record, yourself—when it's back from the printer next week.

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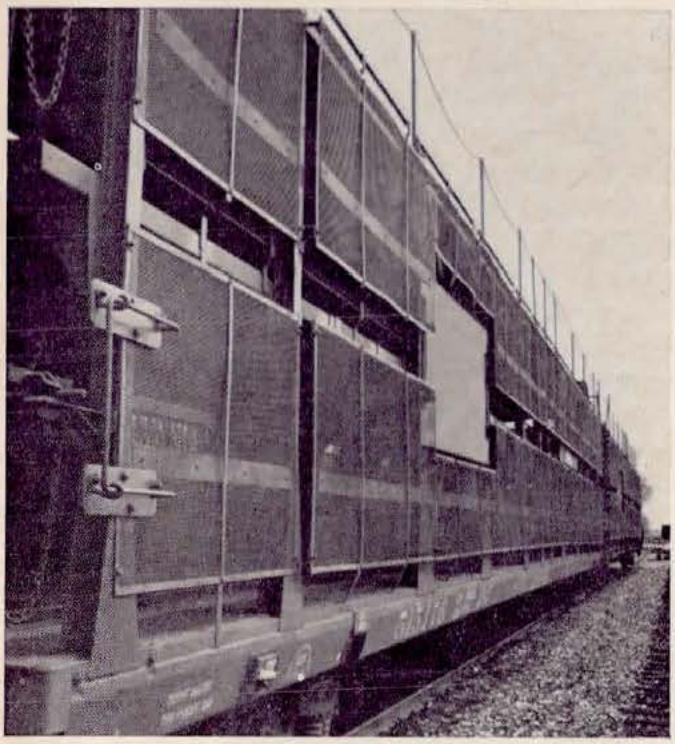

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N&W-C&O score merger opposition

Major opposition to the merger of the Norfolk & Western and the Chesapeake & Ohio is concentrated in a rail giant seeking to restrict competition and a state apparently supporting a monopoly, claimed N&W-C&O representatives in a brief filed July 18 with the ICC.

"Penn Central seeks to dominate merchandise traffic in the East by restricting its rail competition to systems less than half its own size," N&W-C&O said. At the same time, according to the railroads, the State of New York is "inexplicably willing to allow a Penn Central monopoly of rail service to New England and the New York port."

The position of New York State, said N&W-C&O, is in direct contrast to that of the Port of New York Authority which withdrew its opposition, saying that only with such a merger can competition at the Port be preserved.

● **Widespread support cited.** All formal opposition to the merger from parties other than PC and the State of New York is in the form of so-called protective conditions. N&W-C&O has pointed out that support for the merger has come from New Jersey and nine southern states and has been recommended by an ICC examiner. The Justice Department, which requested and received from the examiner certain conditions to the merger, said the N&W-C&O consolidation "is not objectionable from the standpoint of the public interest and, indeed, may promote it."

Turning its guns again toward PC, the N&W-C&O brief noted that it would be to that railroad's "private advantage" to continue its domination of eastern merchandise traffic.

Under the N&W-C&O plan, five eastern railroads would become part of the merged system as subsidiaries of Dereco, Inc., an N&W holding company. These lines are the Erie Lackawanna, Delaware & Hudson, Boston & Maine, Central of New Jersey, and the Reading. Erie and the D&H are already part of the N&W system. The CNJ is bankrupt and the B&M is not far behind.

● **"Russian roulette."** N&W-C&O representatives maintain that this plan offers the only concrete hope for the smaller roads' continued operation. "Penn Central is asking the Commission to play Russian roulette with the public interest by disapproving the N&W-C&O-Dereco transaction now, leaving no major road committed to protect the public interest in continued transportation service," said the brief.

Also noted was that New York State has suggested that Penn Central acquire CNJ. Such action, said N&W-C&O, would eliminate "all rail competition in the most important area of the New York port."

"This casual disregard by New York for preservation of existing active rail competition in its own port cannot be reconciled," said N&W-C&O. "New York's stated position approving Penn Central's acquisition of [some] Dereco lines, and its solicitude for protection of Penn Central from the competition of a second system of equal size, are so far removed from the actual interests of New York in improved rail service in that state and at the New York port as to defy rational analysis."

N&W-C&O also called for adoption of the stock exchange terms they recommend for acquisition of the B&M and Reading, including a long-term extension of B&M's debt maturities. Both lines have demanded increased exchange ratios, and adjusted terms were among the recommendations of the examiner. But N&W-C&O claimed that various reasons, including the impending bankruptcy of the B&M and the heavy debt and questionable future of the Reading, preclude higher terms. ■

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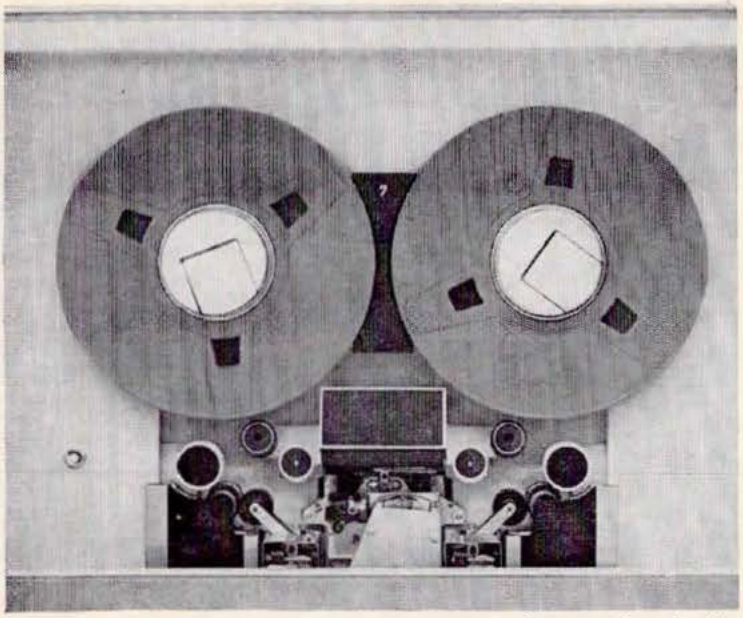

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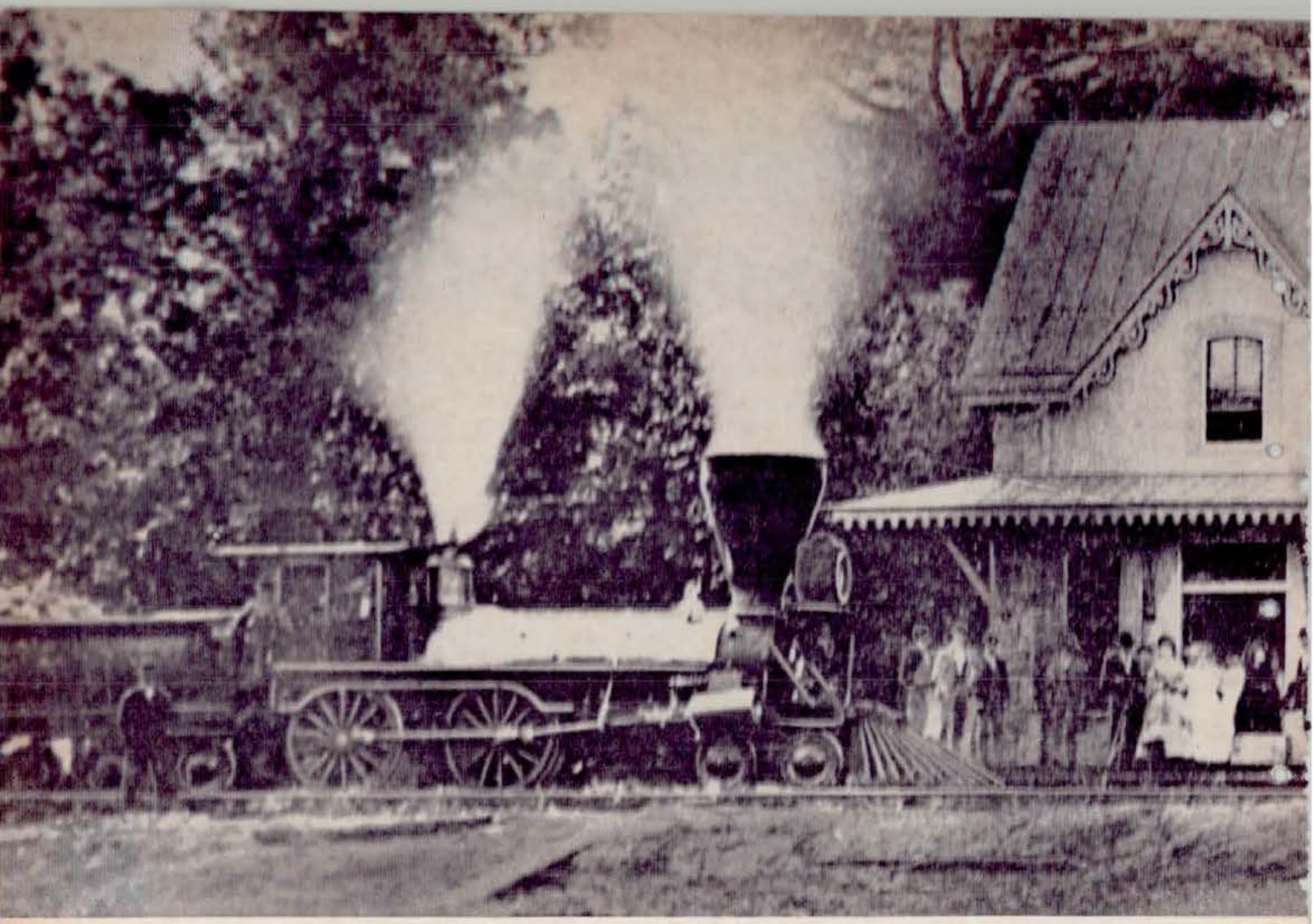

How the railroads got caught

Over 100 years ago, America's first railroads were faced with a terrific challenge.

There was a continent to be developed, river-and-harbor-based cities to be joined in an overland network, new industries to be served.

There was nothing else but horses and wagons to do the job.

The railroad response was magnificent: a revolution in mechanical, civil and electrical engineering—and in manufacturing, too. Indeed, a more lagging response might have saved the railroads from becoming too vulnerable to trouble of many kinds.

But vulnerable they became.

Because there was literally no other way for people and goods to travel faster than a loaded horse, *railroads extended their lines into thousands and thousands of small-scaled communities*—even though trains were by their very nature large in scale. Later, smaller transportation units such as trucks, buses and aircraft would make this "local delivery" type operation—passenger service in particular—utterly uneconomic.

Because the race of the railroads to keep up with the growth of the country discouraged duplication of service, *the railroads naturally developed in a pattern of monopoly*. There were abuses—as in oil, electric power, telephone service, patent control—and the railroads were to be chained with monopoly-type regulations. This would burden them cruelly when cars, trucks, buses and airplanes made transportation fiercely competitive.

Because so much that moved had to move by train, *the railroads became convenient "tax collectors."* It was easier to collect taxes from the railroad—which would in effect pass them on to all the people in the form of higher charges—than it was to collect them from people individually. The time would come when the railroad's economic power would shrink but the tax load would not shrink.

The wonder is that when everything went against the railroads they stood up against it so well.

For this, great credit must be given to a tremendous performance by thousands and thousands of skilled and committed railroaders.

How the railroads are fighting their way out

Great credit must also be given to the basic, bedrock logic of the railroads. . . .

Volumetric Efficiency. For every cubic inch of engine displacement, there is only about half as much opportunity for piston-cylinder wall friction in a giant railway locomotive as in a highway truck.

Less Rolling Resistance. Whereas a flexing rubber highway truck tire resists movement with tremendous

Arrival of first train at new Pewee Valley, Ky., station on L&N in 1867

in a trap

friction and heat, nothing moves so easily as a steel wheel rolling on a steel rail.

Less Air Resistance. Whereas each highway truck must push its own air out of the way in front and drag along its own semi-vacuum at the rear, the close-coupled box cars of a freight train tend to travel through a "tunnel" in the air. This becomes more important as speeds go higher.

Manpower Efficiency. Whereas it takes hundreds of trucks and drivers to carry the equivalent of a trainload, the train has only one "driver."

Guided Movement. The key to modern mechanization—the one thing without which all of a factory's motors, tools, sensing devices, programming equipment, etc., would be utterly useless—is guided movement. This exists in the assembly line, the conveyor, the transfer machine, the guiding slides on which tool heads travel. Without guided movement, you're nowhere in factory automation—just as without guided movement you're nowhere in automated transportation.

"Automation" is one of those flip-flop words that is a villain one moment, a hero the next. As of now, with demand threatening to bump our production capacity ceiling, automation looks pretty attractive.

The aim of civilization is to reduce work in producing a given amount of goods or services, not make work. Fewer people must perform simple, mechanical-style functions that machines perform better and cheaper—more people must be efficiently applied to making things of which we don't have enough.

With its inherent and fantastically efficient guided movement system—its rails—the railroad is strongly qualified indeed to be *the basic mass transportation method of the future.*

But railroaders are not content to rest on the basic advantages of the train—they're developing new ones all the time . . . giant unit trains . . . new loading and unloading devices . . . a whole new spectrum of specialized cars . . . new signaling, communication, computerization . . . welded rail . . . new track maintenance machines. . . . new—you name it!

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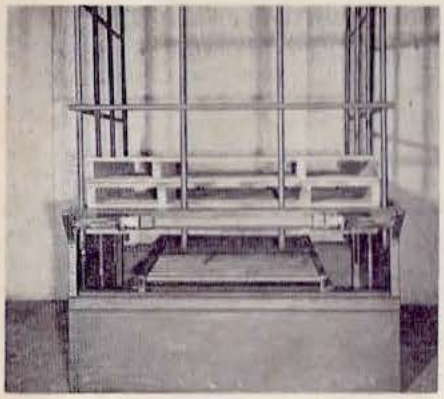
NEW PRODUCTS REPORT

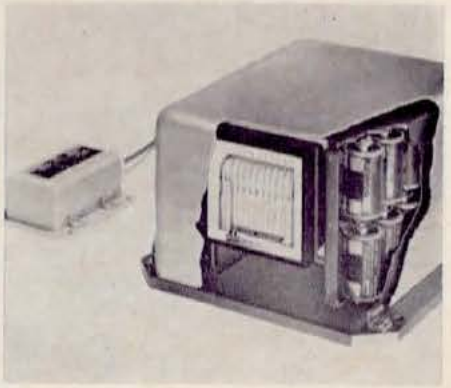


Pallet dispenser (RA-1)

Savings in pallet maintenance costs are said to be up to 50% through the use of the Automatic Pallet Dispenser which dispenses pallets, one at a time, for use at ends of production lines, receiving platforms and other points where large quantities of material are palletized. It operates with air or hydraulic power and is said to be adaptable to any type of automatic control and suitable for use with any automatic operation. *Beacon Machinery, Inc.*

Unloading device (RA-2)

With the Go-Gater, one man, it is said, can open and close hopper-car slide gates within seconds. The hydraulic device, mounted track-side on ball-bearing track-held carriage, moves from one slide-gate position to another. An air-powered worm-gear shaft is easily raised or lowered to fit the hopper-gate socket. When slide gate is either opened or closed, the carriage is unlocked and rolled to the next gate position. *W & A Engineers.*



Shock recorder (RA-3)

The Transit-Guard shock recorder is said to operate up to 30 days unattended. It has 10 channels available for continuous, permanent recording on direct reading, pressure-sensitive tape of all shocks encountered by such shock-sensitive products as color TV, computers and missile instrumentation while in transit. The TG 508 model is available with a self-contained battery pack. The TG 510 model uses an external 12-volt d-c power supply. *Inertia Switch.*

Tiedown system (RA-4)

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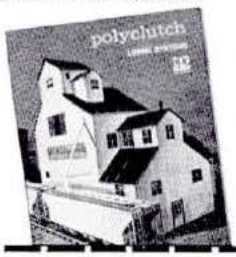

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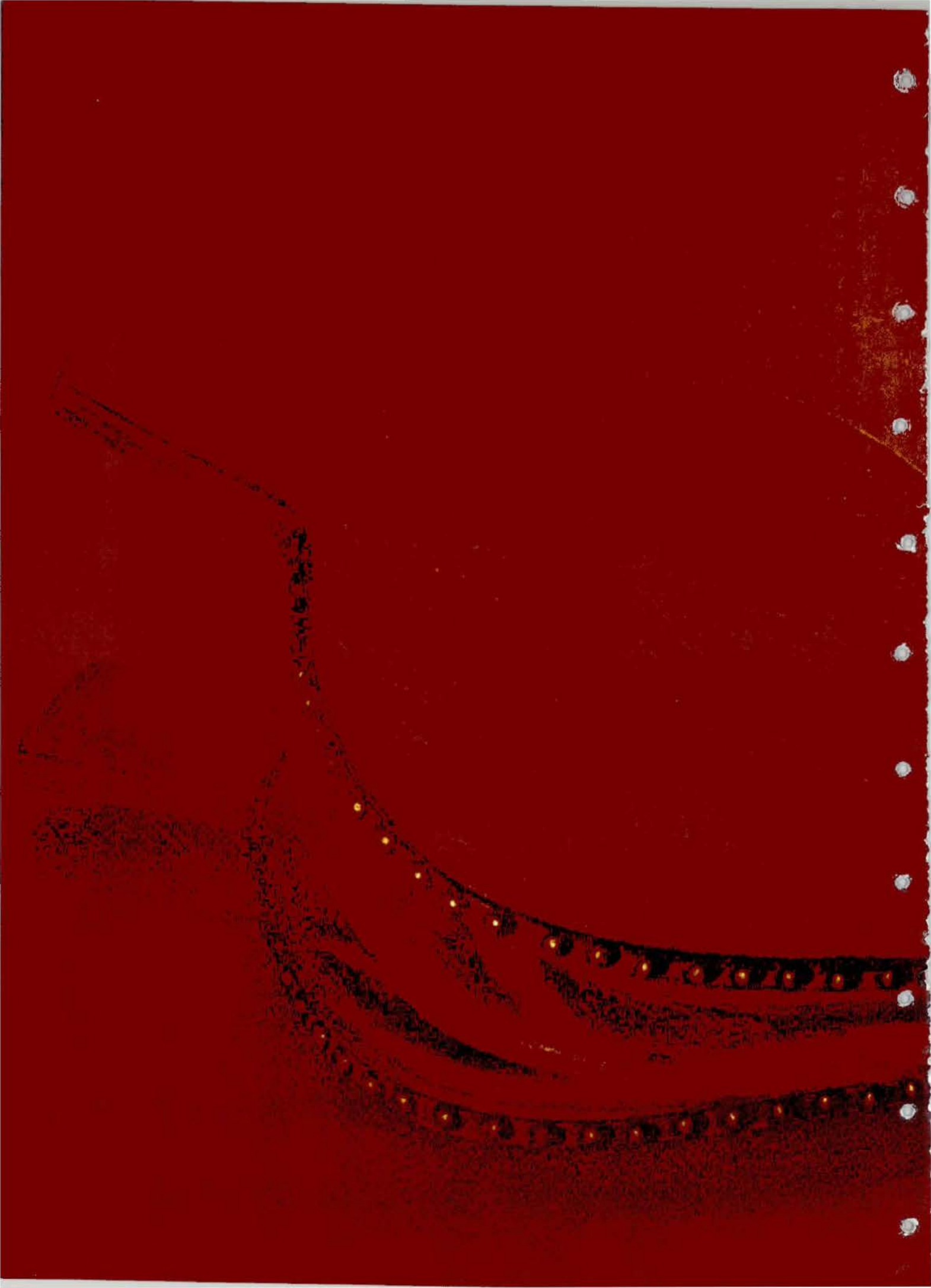

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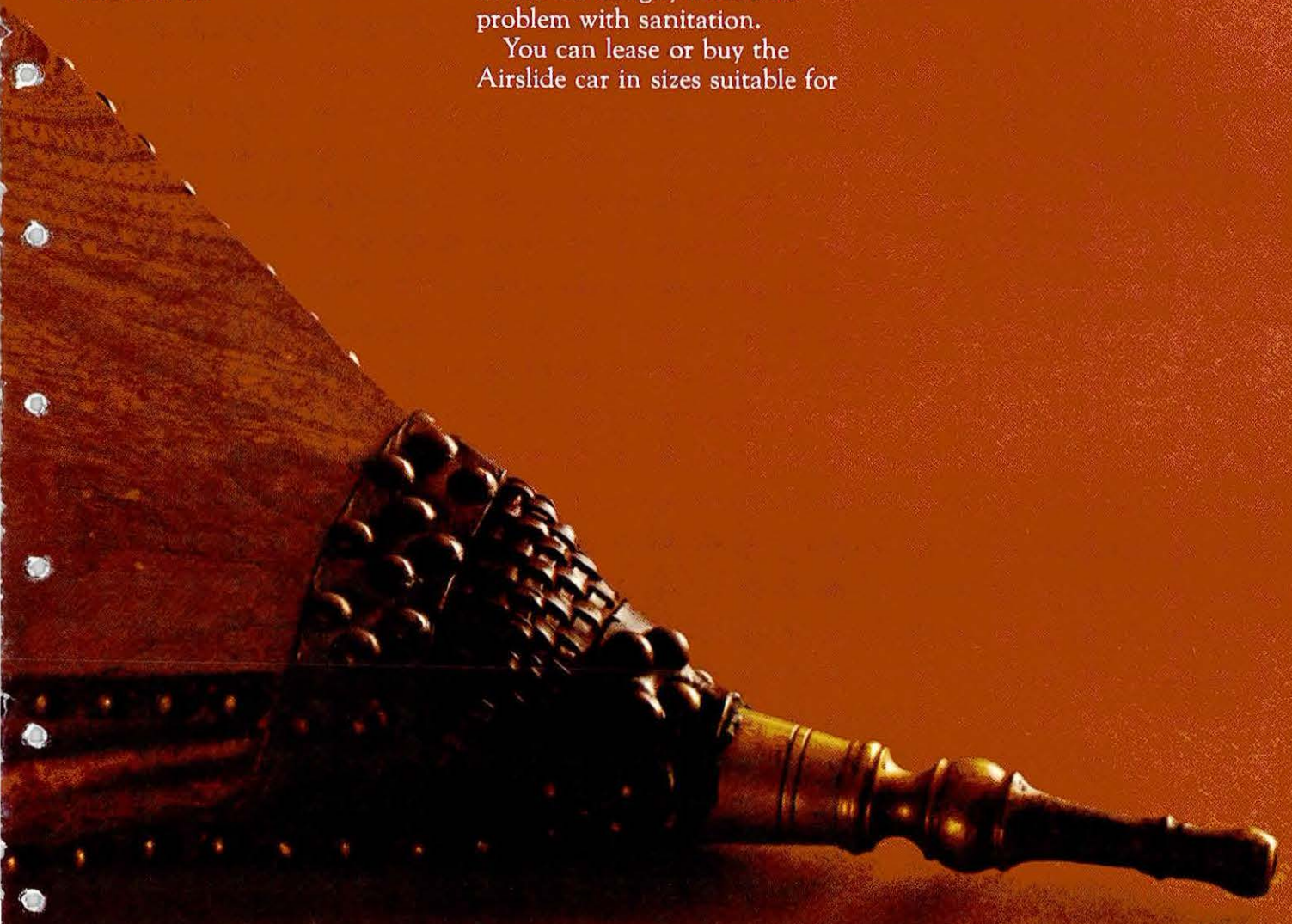

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LETTERS

Car Utilization

College Station, Texas

To the Editor:

Frisco President Richard C. Grayson's remarks, quoted on page 11, July 7, are a hopeful sign of progressive thought in the industry. It is to be hoped that other rail leadership will fall in line with him.

Long before our Senate study on national transportation policy it should have been obvious that the railroads could not solve the problems of the non-owning roads and poor utilization as long as individual control of general purpose cars (not only box) in interchange service continued. I believe this conclusion was reasonably well documented in the study (Senate Report 445, 87th Congress, p. 720). Since that date the situation has worsened despite all efforts to improve it.

The advent of electronic car identification and data transmission will, of course, be a powerful assist to better car utilization. It can never attain its full potential under fragmented car control.

I hope you can support Mr. Grayson editorially as time goes on. There is, of course, no reason why his proposal necessarily would affect specialized cars or cars in assigned service. It would not touch shipper owned equipment.

John P. Doyle
Major General
U.S. Air Force (Ret.)

"Tomorrow's Railroads"

Jacksonville, Fla.

To the Editor:

No. 6 in your series on "Tomorrow's Railroads" is certainly well presented, and you have hit a vital problem, the solution of which could well affect the continuing growth and development of our great industry.

We certainly need to let the public know more about the railroads' inability to manage as freely as other industries do, and, certainly, the positive approach that you have taken will make a great contribution to the achievement of this goal.

W. Thomas Rice
President
Seaboard Coast Line

Dallas, Tex.

To the Editor:

. . . Your observations [Tomorrow's Railroads, No. 6] should be made required reading for all those who make laws pertaining to railroads or are engaged in railroad regulation and also officers of railway labor organizations.

John W. Barriger
President
The Katy

Safety

Kansas City, Kan.

To the Editor:

I found your critical rebuttal of "colored" journals humorously drawn with the style of an expert. You didn't lose your cool but put your message across more masterfully than did the editor who missed his train. Perhaps "As the Editor Sees It" (July 14) should be sent to The Times.

Kenna G. Sorden
Metal Finishers, Inc.

(The New York Times published a letter July 14 from AAR President T. M. Goodfellow who, like Railway Age, took issue with The Times' statement that airlines are safer than railroads. Goodfellow noted that the rail fatality rate per 100 million passenger miles was .10, compared to the airlines' .30. The Times editor replied: "The fatality rate is not the sole index of safety, since airplane wrecks are likely by their nature to have a lower percentage of survivors than accidents on the ground."—Ed.)

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Degree: Engineering, Science, or Math; Master's desirable. Required: ability to expand horizons.

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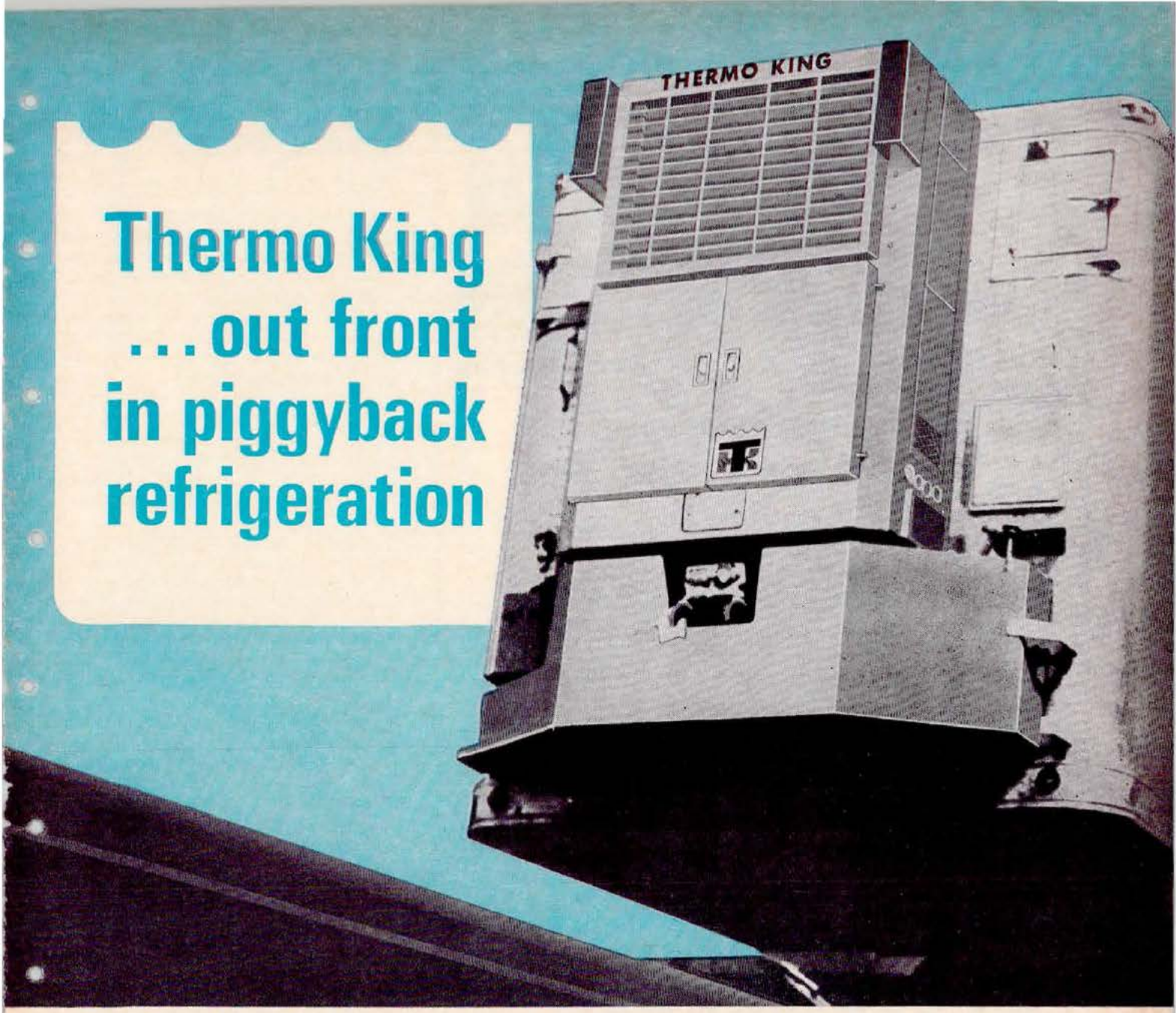
Thermo King ...out front in piggyback refrigeration

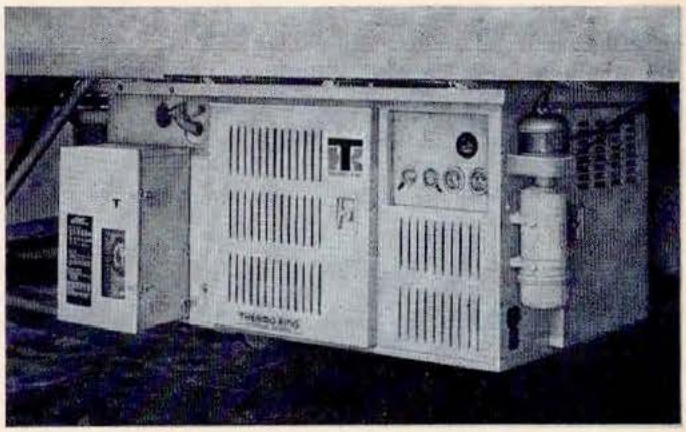


Professional piggybackers rely on special Thermo King frontmount or undermount units for perishable protection

Specially built to the rugged requirements of piggyback operations, these Thermo King refrigeration units keep perishable cargoes at constant temperatures, no matter how long the run or variable the ambients.

In these diesel-powered units, Thermo King has answered the industry need for absolute reliability with extra capacity components, engineering that provides an extra margin of safety, and maintenance features that save downtime and labor.

For information on why Thermo King units mean lowest cost per mile in refrigerated piggyback operations, write Thermo King Corp., Railroad Division, 314 W. 90th St., Minneapolis, Minn. 55420.



WORLD LEADER IN TRANSPORT REFRIGERATION

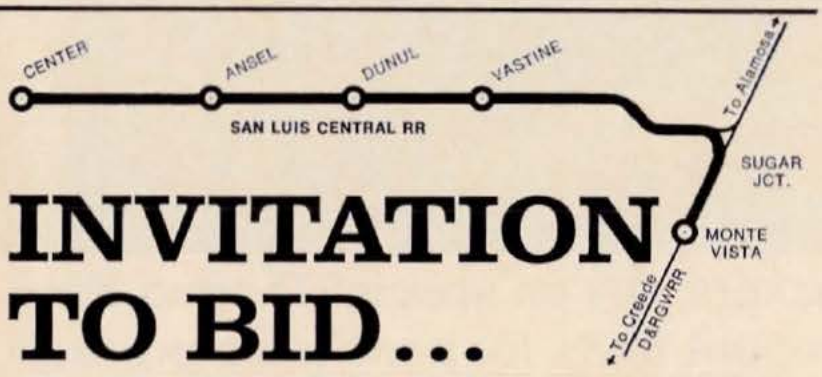
THERMO KING corporation

MINNEAPOLIS, MINNESOTA 55420

Circle 22 on coupon page 48

Sails only once every 4 years. DON'T MISS IT!!!

Hurry! Hurry! Here's *the* basic work book of the railroads for product specifications and technical data. Last edition had 1,200 pages, weighed 7 lbs, 12 oz! Users include principal mechanical department officers, shop superintendents and supervisors, car-builders, locomotive builders, manufacturers of component equipment. Railroaders buy 5,000 copies every four years. You're right up against the closing date now! Hurry! CAR AND LOCOMOTIVE CYCLOPEDIA, 30 Church, New York, N.Y. 10007.



INVITATION TO BID...

Here is an unusual opportunity to buy a going short line railroad in the San Luis Valley of Colorado. The San Luis Central Railroad runs between Monte Vista in Rio Grande County, and Center in Sanguache County—a distance of approximately 12 miles. It connects with the Denver & Rio Grande Western Railroad at Monte Vista and Sugar Junction.

The SLC has been serving the San Luis Valley for 56 years. Its main source of revenue is agricultural crops (particularly potatoes). The company showed a net gain of $183.00 for the calendar year 1968, after depreciation, taxes and fixed charges. This compares with a loss of $18,360.00 in 1967, and $3,227.00 in 1966. Working capital as of May 1, 1969 was approximately $30,471.30. Freight revenues for the first three months of 1969 showed an increase of $7,030.22, as compared with the first three months of 1968. Physical properties include one GE 600hp diesel electric locomotive purchased in 1955, engine house, depot, tool houses, track and Rights of Way.

All bids must be submitted in writing by 10 A.M. August 30, 1969 to the Trust Dept. of the First National Bank of Denver. Complete financial statements and other pertinent information are available. Please write or phone Gerald L. Wallis, Trust Department.

FIRST NATIONAL BANK OF DENVER

P.O. BOX 5808, DENVER, COLORADO 80217
303-266-2211

World's largest covered hopper

(Continued from page 27)

ors, Thrall designed and built a 4727 cu. ft. standard covered hopper which could be converted easily to the Granu-Max design. This car's sloping floor sheets were attached to the car's full sides with Huck bolts, and could be removed and replaced with flat ones like those in the Granu-Maxes just delivered to Huber. It was determined that when the conversion would take place, the car's capacity would increase from 4727 cu. ft. to 5750 cu. ft. Before embarking on the program which led to the development of the 7,300 cu. ft. Granu-Max, Thrall built a few prototypes of the 5750 cu. ft. capacity car.

Although the big Granu-Max car's eight outlets are located on 6-ft. centers, Thrall doesn't anticipate that any major conversions will have to be made at receiving sites to accept the car. Some receiving plants have already installed a fourth receiving inlet, also on 12-ft. center. This means that merely by respotting the 7,300 cu. ft. car one time, it is possible to fully unload it. After the original spotting at the receiving hopper, four of the eight outlets, including the one at one end of the car that takes the lading forced into it by the diaphragm, are used. The car is then moved a few feet so the remaining four outlets are over the receiving inlets, and the procedure is repeated.

Although the big car, which has a light weight of approximately 72,500 lbs., was designed to accommodate the very light weight carbon black and permit shippers to receive the lower rates on 140,000 lb. minimum shipments, it is equipped with 100-ton trucks. This was done, explains Mapp, in order to accommodate the widest possible range of carbon black densities without exceeding the car's gross rail load limitation.

● **Quality check points.** A pair of unusual capped ports in each side of the Granu-Max car, called sampling site valves, point up the extreme care which must be taken in handling carbon black, and emphasize the demands for quality control which users of the material are making. These valves are used to take samplings of the lading upon its arrival.

If samples taken from approximately the center of the lading in each of the car's two compartments fail to meet the specifications set forth, the entire carload could be rejected. Carbon black is pelletized for shipment, as well as for any easy handling at users' plants and, if a carload should show an overabundance of crushed pellets, or "fines," it could be rejected, also. ■

Articulation: C&O's flexible car

(Continued from page 24)

maintaining a coal-tight (but not water-tight) seal as the car traverses horizontal and vertical curves. While this arrangement has proven entirely satisfactory in service, it is now planned that the car will be modified with cross sheets at the articulated ends of the units to permit their separation in the event the center truck requires maintenance while the car is under load. An overlapping hood will still bridge over these end sheets to permit uninterrupted (or "flood") loading as the car moves under a chute.

● **Hydraulic brake.** The carbody weighs 42,200 pounds; the pair of 50-ton trucks weighs 13,500 pounds, and the central 100-ton truck weighs 9,500 pounds. Emphasis on weight reduction in the car's design was one factor in another of its features, the first installation of the New York Air Brake pneumatic-hydraulic brake system, including a hydraulic hand brake.

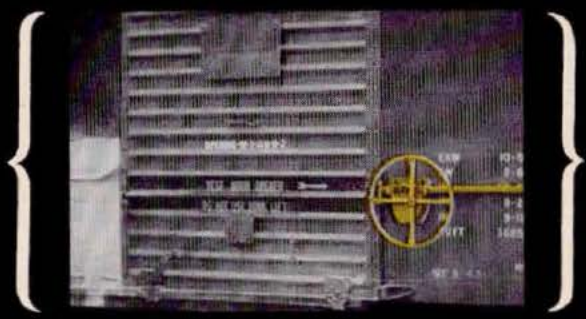
The automatic and hand brake systems function on all the car's 12 wheels. The hydraulic cylinders are located directly over the rail and supported by levers pivoted at the top in brake-hanger brackets. Each brake cylinder is equipped with a mechanical lock to prevent the loss of hand-brake force should there be a loss of hydraulic pressure after the brake is applied.

Most of the conventional brake hardware has disappeared with the installation of the hydraulic brake system. There are no brake beams, levers, rods, or slack adjusters. The brake pipe's pneumatic signals are relayed to the standard brake control valve; the brake system's 50 psi air pressure is translated to 800-psi hydraulic pressure which makes possible smaller components and instantaneous response at all cylinders.

Bethlehem's Holabeck says the pneumatic-hydraulic brake system reduces substantially the charging time for trains. A train of 100 cars like the prototype hopper would require only 15 minutes for charging as compared with 45 minutes for a train with standard air brakes. He points out that the total brake equipment weighs less than 900 pounds as contrasted with over 1,800 pounds for a 100-ton car with truck-mounted air brakes.

Each of the two body units is equipped with four longitudinal doors that operate simultaneously and discharge between the rails. While they are presently actuated manually, the car is shortly to be converted to full pneumatic door operation, powered from a trackside air source.

HENNESSY'S
OPEN DOOR
POLICY



SAVES SHIPPERS' TIME

(SLIDEWELL Equipped Car Doors Always Open!)

HENNESSY PRODUCTS

"NOW THERE'S AN EASIER WAY"

HENNESSY PRODUCTS, INC.
Box 420 / Chambersburg, Penna.

Circle 24 on coupon page 48

TRAFFIC POLL

(Continued from page 21)

raidroad," reported Richard J. Petska, manager of Transportation, Cedar Rapids, Ia., Chamber of Commerce.

Robert J. Tyler, corporate traffic coordinator for the Chemetron Corp., Louisville, suggested that other railroads follow the example of the Frisco in reducing terminal delays: "The experience of the Frisco has demonstrated that the cost of improved handling through terminals can be fully justified."

"As a shipper," said J. Robert Morton, director of corporate traffic and transportation for Combustion Engineering Inc., Windsor, Conn., "I am interested in time in transit from shipping point to unloading point. Would you believe we have car numbers showing speeds of less than two mph on regular consistent moves of a car a day being shipped? The real culprits are the carriers themselves and it is the carriers who need to look into their own back yards.

Some other shipper-to-railroad suggestions:

"Until present car service and demurrage rules are completely revamped to put car operations and supply on a businesslike basis, I do not believe there is anything really effective anybody can do about the matter."—Arthur M. Ribe, director of transportation, Vulcan Materials Co., Birmingham, Ala.

"Improve the handling and return of empties by the railroads. Change the AAR car supply rules to provide that each railroad supply or contribute to a national car pool relative to their share of anticipated revenue."—W. E. Harvey, director of distribution, Swift & Co., Chicago.

"Increase per diem charges on the type of equipment in short supply. History pinpoints those times when certain cars are in short supply. Increased per diem rates during these periods would encourage carriers to move empty equipment off of their lines if no loads were available. The penalty per diem could be limited to critical car shortages and might only be needed for 30 or 60 days. It would not be permanent."—Joe Howe, manager of North American traffic, Deere & Co., Moline, Ill.

"Railroad sales people should constantly remind shippers and receivers that when they help with this problem, they are helping themselves."—John E. T. Anderson, traffic manager, Wine Safety Appliances Co., Pittsburgh. ■

NEW! GLASBORD® CONVOLUTE RIB PANELS HIGHLY IMPACT & ABRASION RESISTANT

This all new GLASBORD RIB PANEL is a versatile configuration—precision molded to provide maximum panel strength and a superior surface finish. The configuration is the convolute type as shown by the illustration, and features an easy-to-seal lap joint for simplified installation.

The ribs of the GLASBORD PANEL are wide with plenty of load-holding surface. They are properly spaced for adequate air circulation, yet close enough to hold back even small cartons. These wide ribs with well rounded corners prevent damage to hanging meat carcasses, and easily deflect glancing blows from pallets and fork lifts.

Steam cleaning and immediate cooling to subzero temperatures have no adverse effect on GLASBORD RIB PANELS.

A variety of lengths and widths is available.

ASK FOR BULLETIN 69.

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Dept. RA
P. O. Box 429, Joliet, Illinois 60434

Circle 25 on coupon page 48

DIFFERENTIAL AIR DUMP CARS

CARRY MORE · WEIGH LESS!

MAINTENANCE OF WAY . . . ideal for ditching, rip-rapping, widening banks, and power shovel work.

REVENUE SERVICE . . . fast economical bulk handling for unit train or fast turn-around applications.

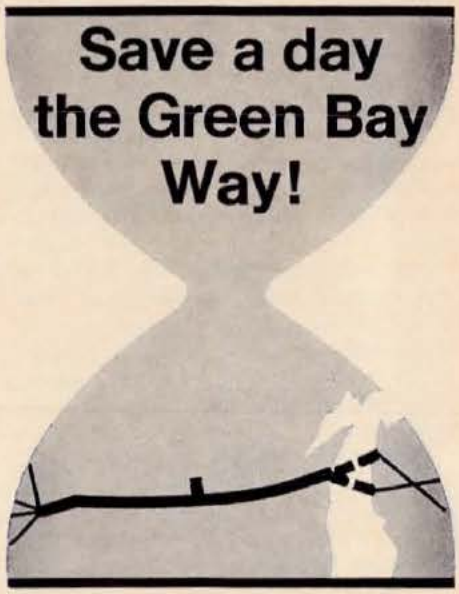
8-second dumping — all-welded construction — sizes to 70 cu. yds.

Write for bulletin D-59

DIFCO, Inc. Box 238, Findlay, Ohio 45840, U.S.A. Ph. (419) 422-0525

Circle 26 on coupon page 48

Save a day the Green Bay Way!



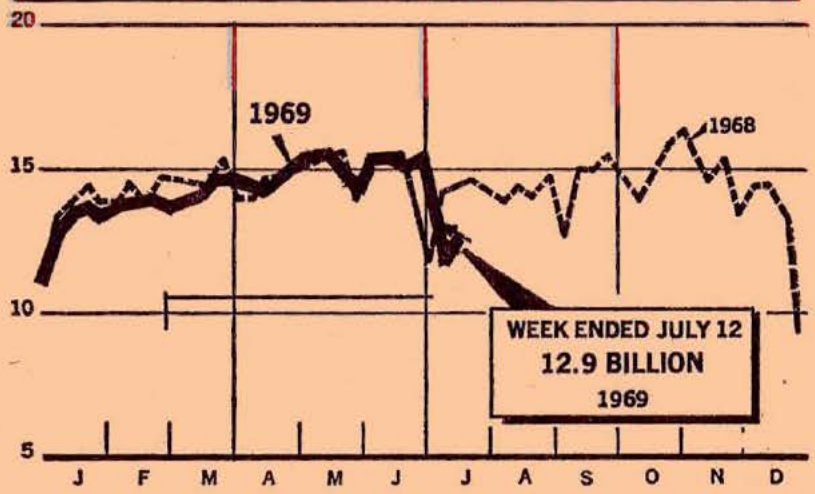
Here's a fast, direct East-West route offering you seven connections. You by-pass congested cities and terminal delays. Frequent, all-weather train ferry movement across Lake Michigan.

GREEN BAY ROUTE GREEN BAY AND WESTERN RAILROAD

Circle 27 on coupon page 48

RAIL FREIGHT TRAFFIC TRENDS

BILLION TON MILES (Estimated)



Source: Association of American Railroads

SHIPMENTS OF RAILROAD STEEL PRODUCTS

(MAY AND FIVE MONTHS 1969)

	NET TONS			
	May	Per Cent Change*	Five Months	Per Cent Change*
Rails, trackwork and equipment	94,197	– 7.2	523,105	+ 9.1
Freight and passenger cars and locomotives	212,660	+ 6.8	1,032,237	+ 7.3
Street railways and rapid transit systems	3,678	– 60.3	16,185	– 46.0

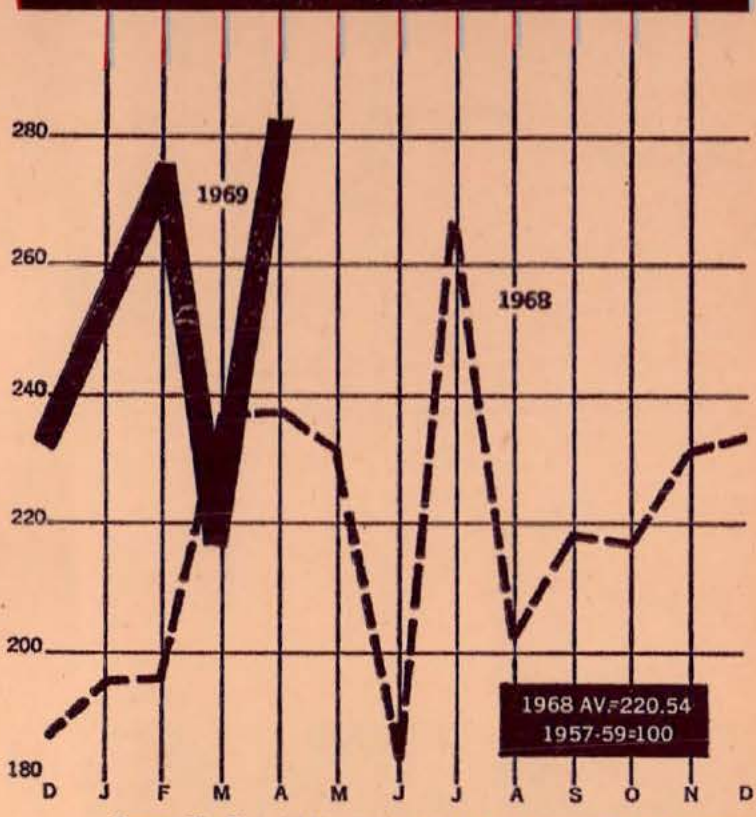
*Per cent change compares 1969 periods with like 1968 periods.
Source: American Iron and Steel Institute.

Current Statistics

Net Income, Class I roads	
Three months, 1969	$ 97,000,000
Three months, 1968	$111,650,113
New freight cars on order	
June 1, 1969	47,445
June, 1, 1968	19,281
New freight cars delivered	
5 mos., 1969	27,391
5 mos., 1968	26,951
Serviceable cars	
May 1, 1969	1,375,709
May 1, 1968	1,398,772

MATERIAL HANDLING EQUIPMENT BOOKINGS

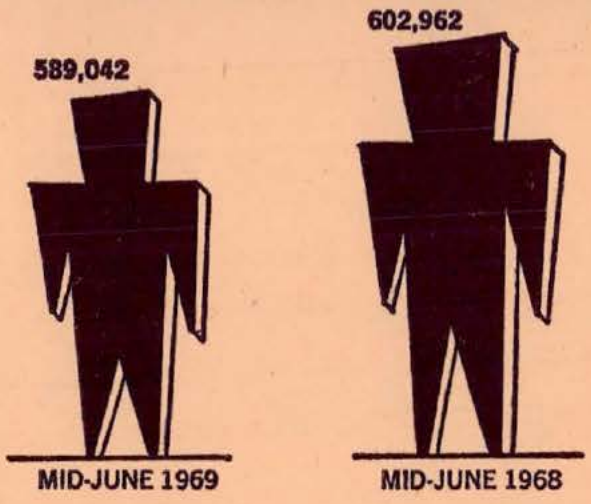
(seasonally adjusted)



Source: The Material Handling Institute. MHI says books of industrial material handling equipment for first four months of 1969 reached the record-breaking volume of $536,317,514. Dollar volume in April alone was $157,794,606, highest bookings figure ever recorded in a single month by the industry.

RAILROAD EMPLOYMENT

(CLASS I LINE-HAUL RAILROADS)



Source: Bureau of Accounts, ICC.

MARKET OUTLOOK

CARLOADINGS

Loadings of revenue freight in the week ended July 19 totaled 536,361 cars, the Association of American Railroads announced on July 25. This was an increase of 56,880 cars, or 11.9%, compared with the previous week; a decrease of 29,150 cars, or 5.2%, compared with the corresponding week last year; and an increase of 51,813 cars, or 10.7%, compared with the equivalent 1967 week. Ton-miles generated by carloadings in the week ended July 19 are estimated at 14.3 billion, a decrease of 1.9% below the corresponding week of 1968, and 17.7% above the 1967 week.

REVENUE FREIGHT CARLOADINGS

Commodity	July 12 week	Preceding week	Per cent change
Grain	32,415	29,813	+ 8.7
Farm products	13,472	11,391	+ 8.3
Metallic ores	49,902	47,855	+ 4.3
Coal	47,945	46,927	+ 2.2
Crushed stone, gravel & sand	32,048	29,399	+ 9.0
Nonmetallic minerals	11,499	10,173	+13.0
Grain mill products	18,346	17,000	+ 7.9
Food & kindred products	22,143	19,944	+11.0
Primary forest products	21,825	18,536	+17.7
Lumber & wood products (except furniture)	13,275	12,346	+ 7.5
Pulp, paper & allied products	20,617	22,077	— 6.6
Chemicals & allied products	22,894	21,805	+ 5.0
Petroleum products	10,899	9,459	+15.2
Stone, clay & glass products	20,819	19,286	+ 7.9
Coke	7,947	7,652	+ 3.9
Metals & products	26,743	27,348	— 2.2
Motor vehicles & equipment	18,709	18,910	— 1.1
Waste & scrap materials	13,587	11,922	+14.0
Forwarder & shipper assn. traffic	6,603	6,410	+ 3.0
All other carloads	66,318	60,503	+ 9.6
LCL traffic	1,475	1,512	— 2.4
Total cars loaded	479,481	450,267	+ 6.5

CUMULATIVE TOTAL, 27 WEEKS	1969	1968	1967
	14,858,347	15,015,821	14,938,263

PIGGYBACK CARLOADINGS

U. S. piggyback loadings for the week ended July 12 totaled 23,779 cars, carrying 39,606 trailers, compared with 24,973 cars, carrying 41,155 trailers, in the corresponding 1968 week. Loadings for 1969 up to July 12 totaled 710,961 cars, carrying 1,170,302 trailers, compared with 700,892 cars, carrying 1,136,626 trailers, in the corresponding period of 1968.

IN CANADA

Cumulative	Revenue Cars Loaded	Total cars Rec'd from Connections
June 30, 1969	1,798,401	625,592
June 30, 1968	1,835,252	632,243

FREIGHT-TRAIN CARS

● *Grand Trunk Western.*—Ordered 97 70-ton high-cube box cars from Greenville Steel Car at a cost of approximately $3 million. Delivery is scheduled for November.

PIGGYBACK

● *Rock Island.*—Ordered 200 3,100-cu-ft-capacity drop-frame trailers from Timpte, Inc., for delivery in third- and fourth-quarter 1969. Trailers will be equipped with special landing gears, front and rear, which will permit adjustment of trailer floor height to match varying heights of loading docks. Under an agreement with Timpte, Rock Island initially has exclusive use of the landing gear device.

NEW FACILITIES

● *Gulf, Mobile & Ohio.*—Awarded contracts totaling more than $1 million to General Electric's Communication Products Department for microwave equipment. GM&O has had microwave in service for about a year between Mobile and Meridian, Miss., and the network will now be extended north to Fulton, Ky. The new contract calls for GE to provide TRS-696 microwave radio repeaters and terminals and TCS-600 and TCS-600A multiplex equipment. System design will be similar to that used on the original microwave segment, also provided by GE. Installations will be made at Chapel Hill, Macon, Artesia, Muldon, Okolona, Tupelo, Bonneville and Corinth in Mississippi; at McNairy, Jackson, Fruitland and Rutherford in Tennessee; and at Fulton.

● *Long Island.*—American Chain & Cable Co., Inc., Bristol Division, has been awarded a contract for a Data-Master supervisory control system as part of a $49-million program of the Metropolitan Transportation Authority to improve LIRR's electrification system. The supervisory control system will permit the railroad to operate its network of electric power substations from a power director's office at Jamaica, L.I., station. Included in the order is a display panel, a keyboard control panel for remote control operation, an electronic data collection and transmission system. Eighty-five field units are to be installed at substations to receive and utilize data and to provide data on substation operating conditions to the Jamaica center. Delivery of the system will begin in April 1970.

● *St. Lawrence Seaway Authority.*—Will re-invite tenders for construction of a road-rail tunnel at Townline Road-Welland, Ont. Subsequent to the opening of bids May 13, the low bidder found that a "substantial" error had been made in the tendered price for common excavation; the bid was therefore withdrawn. Other tenders were heavily in excess of original estimates, leading to the call for new bids.

YOU OUGHT TO KNOW

Express Metroliner now stops at Newark

Penn Central's express Metroliner service between New York and Washington has starting making stops at Newark, N. J. The new stop, begun on July 14, is designed to test Metroliner service in competition with air shuttle flights from Newark Airport as well as LaGuardia. The Express, which leaves Penn Station at 7:30 a.m., picks up passengers at Newark at 7:40 and continues non-stop to Washington, arriving at 10 a.m. On the return run, the express leaves the capital at 4:30 p.m., stops at Newark at 6:48, and arrives at Penn Station in New York at 7 p.m.

U.S. & Japanese firms to build tunnels

The Japanese industrial complex of Kawasaki Heavy Industries, Ltd., and an American engineering organization—Parsons, Brinckerhoff, Quade & Douglas, of New York—have joined forces to work in the field of sunken-tube tunnels. According to their technical agreement, the American firm will provide general consulting services, including study, design, and construction management of the underwater tunnels in Japan. Various Japanese agencies have announced plans for several tunnels under Tokyo Bay.

Transco, Inc. leases C&NW freight-car shop

Chicago & North Western's car shop and paint shop at Oelwein, Iowa, have been leased by the Railroad Products Division of Transco, Inc. H. S. Goss, Transco president, said the facilities will be used for freight-car repair, remodeling, renovation and rebuilding, for railroads, car-leasing companies and private car-owners. Operations are scheduled to begin about Aug. 1.

Ike railroad cars headed for a museum

The two railroad cars which served as living and working quarters for General Dwight D. Eisenhower in Europe in World War II are headed for the National Railroad Museum at Green Bay, Wis., where they will be reunited with the British locomotive "Dwight D. Eisenhower" which powered the general's train. Ike's cars will look as they did during the war, with one exception: Heavy armor was removed when the units were returned to regular service on the London & North Eastern after the end of the war.

PC to get $28.4-million car grant

Though it has not been officially affirmed, DOT secretary John A. Volpe is expected to announce soon the awarding of a $28.4-million grant which will allow the purchase of modern passenger cars for the Penn Central's New Haven line, according to Senator Abraham Ribicoff (D.-Conn.). The Senator said that Volpe informed him in a letter that he hopes that final negotiations which have held up the implementation of the grant will be completed in the very near future.

Philadelphia starts subway extension

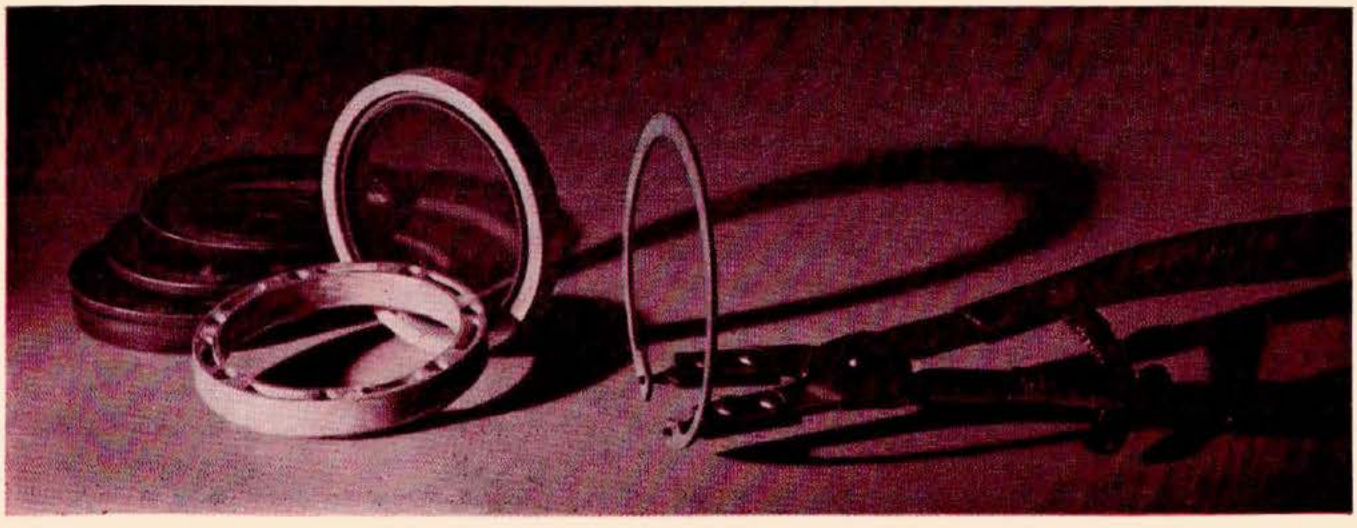
Philadelphia has begun its long-awaited $123.3-million construction of the Broad Street Subway extensions. Construction of two sections in South Philadelphia got under way July 7 with the award of a $17.5-million contract to Peter Kiewit & Sons of Omaha, Neb. The timetable calls for completion of the two extensions — 1.2 miles in the south and 6.8 miles in the northeast — in three years.

For the Record

Last week's story on Southern's steam excursion, (RA, 7/21, p. 27) erroneously said that the railway's profit from the trip was $2,485. That actually was the figure for the railway's out-of-pocket costs. The Southern profit, on revenue of $3,085, was approximately $600. That was the figure erroneously reported for out-of-pocket costs.

Repacking Kits for KEYSTONE SHOCK CONTROL aren't selling very fast.

We couldn't be happier!



Divide the over 50,000 KEYSTONE SHOCK CONTROL Units sold, into $360.00 (the total cost of the 16 Repair Repacking Kits sold) and you'll have the cost per unit spent replacing seals in KEYSTONE SHOCK CONTROL from 1959 to 1969 —.0072 cents. Other than checking the oil level, NO OTHER MAINTENANCE IS REQUIRED!

Compare this .0072 cents cost per unit with seal replacement or maintenance costs on any of the other cushioning devices available. Then, decide which particular cushioning device will actually cost you less over the long haul. Your Keystone Sales Representative will be pleased to give you additional information and facts, write or call 312/427-7160.

KEYSTONE RAILWAY EQUIPMENT COMPANY
DIVISION OF KEYSTONE INDUSTRIES, INC.
General Offices: 310 S. Michigan Avenue • Chicago, Illinois 60604
Manufacturing: Camp Hill, Pennsylvania 17011

Sales Offices: San Francisco, California • Chicago, Illinois • St. Paul, Minnesota • St. Louis, Missouri • Omaha, Nebraska New York, New York • Philadelphia, Pennsylvania • Springfield, Virginia • Montreal, Quebec, Canada • Mexico, D.F.

Circle 28 on coupon page 48

M. Fred Coffman
E-L

Herbert E. Simpson
E-L

Wm. P. Coliton
WM

W. Arthur Grotz
WM

PEOPLE IN THE NEWS

AKRON, CANTON & YOUNGSTOWN.—**Herman H. Pevler** elected chairman of the board, succeeding **Vincent H. Johnson,** who resigned to devote full time as vice chairman Akron National Bank & Trust Co. **E. R. Hostetter** elected president, general manager and chief executive officer.

ASSOCIATION OF AMERICAN RAILROADS.—**C. K. Carmichael** named director of public relations, Two Penn Plaza, New York, Phone 212-565-2710. Mr. Carmichael was formerly a senior vice president at Geyer-Oswald and, as a result of this and other advertising agency work, has a railroad background of more than 20 years.

James I. Collier, Jr., appointed assistant general solicitor, Washington, D. C. Mr. Collier was formerly with the **Federal Railroad Administration** where he served as an attorney-advisor, Office of Policy & Program Analysis, and trial attorney, Office of chief counsel.

CHESAPEAKE WEASTERN—Robert Y. Cooke, trainmaster–roadmaster, **Norfolk & Western,** Weller, Va., appointed vice president and general manager, **Chesapeake Western,** succeeding **William S. Ballard,** retired.

We'll know in three seconds. Because keeping track of some 142,000 roving railroad cars is all in a day's work for CLIC. Pioneered ten years ago, our Car Location Information Center is still the most advanced car tracing computer system in operation today. CLIC means you can have tight control over distribution. Fewer warehouses. And the flexibility of reconsignment to better markets.

Maybe roving cars isn't your problem. Then tell us what is. There's a good chance we've already solved it. If not, we will. Call our local salesman. Or, for our Distribution Services Brochure, write: C. R. Zarfoss, Vice President, Merchandise Freight Group, One Charles Center, Baltimore, Md. 21201.

THE C&O/B&O RAILROADS Cleveland 44101 • Baltimore 21201

Circle 29 on coupon page 48

DELAWARE & HUDSON.—**H. C. Moore** appointed Southeastern sales manager, Atlanta, Ga., succeeding **Raymond O. Beebe,** who retired July 1, after 46 years of service. **Richard C. Jones** named sales representative, Atlanta.

DELRAY CONNECTING.—**Paul N. Weissert** named general manager of this subsidiary of **National Steel Corp.,** at Detroit, Mich.

ERIE LACKAWANNA.—**M. Fred Coffman,** assistant vice president, Hoboken, N. J., elected vice president–traffic, Cleveland, Ohio, succeeding **Harry C. Schmidt,** who continues as vice president. Mr. Schmidt will serve as an advisor on traffic matters pending his retirement in September. **George W. Herkner, Jr.,** assistant director of market research, Cleveland, succeeds Mr. Coffman as assistant vice president, Hoboken. **Herbert E. Simpson,** assistant vice president–traffic, elected vice president–sales, Traffic Department, Cleveland. **Ralph D. McMullin** appointed freight traffic manager, Boston, Mass. **Theodore G. Pierce, Jr.,** named division sales manager, Elmira, N. Y., succeeding **George Pettersen,** retired.

Bernard Geier, engineer work equipment, Meadville, Pa., retired July 1 after more than 41 years of service.

NORFOLK SOUTHERN.—**H. R. Parrott,** assistant general superintendent, Raleigh, N. C., appointed to the newly created position of chief transportation officer there. The positions of general superintendent and assistant general superintendent were abolished.

Sherwood R. McEwen appointed district sales representative, Pittsburgh, succeeding **Harry L. Zeber,** district sales manager, who retires July 31.

PENN CENTRAL.—**William B. Salter,** vice president and general manager, Northern Region, PC, Detroit, elected president, **Mackinac Transportation Co.,** which is two-thirds owned by PC with remaining portion held by the Soo line. Mr. Salter succeeds **Howard C. Kohout,** named vice president–passenger service, PC, Philadelphia.

Raymond L. Harper, administrative assistant, transportation department, Cleveland, appointed executive assistant, Lake Region, Cleveland, succeeding **Ruel A. Struble,** retired.

Fred K. Price, division sales manager, Philadelphia, appointed freight sales manager, Delaware-Maryland-Virginia District, Columbia area, Philadelphia, succeeding **Edward H. Ahlborn,** retired.

Lewin W. Wickes, assistant general counsel, Philadelphia, promoted to general attorney.

WESTERN MARYLAND.—**William P. Coliton,** vice president of sales, Baltimore, will succeed **W. Arthur Grotz** as president of the WM on Aug. 1. After retirement from the WM, Mr. Grotz will conduct a consulting practice in finance and transportation from offices in One Charles Center, Baltimore.

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VIEWPOINT

Now back down to earth...

More than 125 million Americans, it's estimated, watched man walk on the moon. For the scientific community, the world (or, more properly, the universe) will never be the same again. But for most of the others in that 125 million plus, life will go on pretty much as before. We have been awed, and we have been inspired. We've had a new feeling of pride (nationalistic or otherwise), and we've once again had demonstrated the kind of technological competence which makes us believe that nothing is impossible.

Here on earth, life is indeed going on in much the same old ways. We televiewers got to the moon, in spirit, but it still takes an hour or so to get to work in the morning over a clogged expressway. We got a moon ship and a command ship docked just three minutes off preflight schedule, but we still don't always know for sure whether a carload of freight will take three days or a week to get from shipper to receiver. We saw a true systems approach to "transportation," but here we have no real system.

We have spent, it's said, about $24 billion in preparation for landing a man on the moon. That's within a few billion dollars of the entire net investment in railroad property and equipment, and perhaps that comparison, like others that could be made, doesn't mean much. But perhaps it does contain at least the germ of a thought, which might be useful to policy-makers in Washington.

From the days of John F. Kennedy through the days of Lyndon B. Johnson into the days of Richard M. Nixon, there has been a dedication and a commitment to the moon project. Through all these days, there has been mild debate, but Congress has backed-up this national purpose with the dollars required. We have landed men on the moon.

From the days of JFK through the days of LBJ into the days of RMN, there has been no such dedication or commitment to improving the mobility of persons or things for American earthlings. There has been no change in "national transportation policy." Some observers are nervy enough to suggest that the billions spent on domestic tranportation have been spent badly, without adequate thought to total transportation goals. We have landed men on the moon, but we do not have a dependable, integrated transportation system for people or things on earth.

HOPE FOR THE POOR RELATIONS

The Rev. Ralph Abernathy, head of the Southern Christian Leadership Conference and a man who has his own problems with national priorities, thinks the very fact of the successful moon-shot will produce better days for the poor, through pressures which now can be applied. Maybe other causes—and the cause of total transportation is one which has been a poor relation, too—can find some similar hope.

The flight of Apollo 11 proved many things to many people. Each man, as usual, could interpret an event in his own way. For users of transportation—and that means just about everybody—how about this interpretation: Any nation that can put a man onto the Sea of Tranquillity, doesn't have to put up with dis-integrated, un-systematic, second-rate transportation at home. So why do we?

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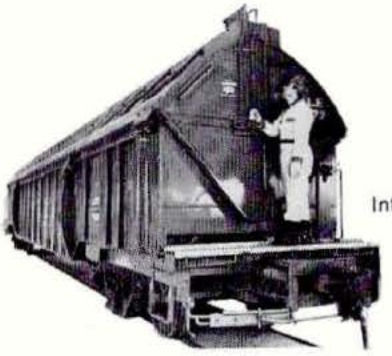

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And if you're not filled in on the equipment use and dollar advantages of the split lease concept, ask us. We invented the idea.

You'll be hearing more from us, because we have good reasons to blow our own horn. Look for us at the head of the parade. We'll be in step, too.

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